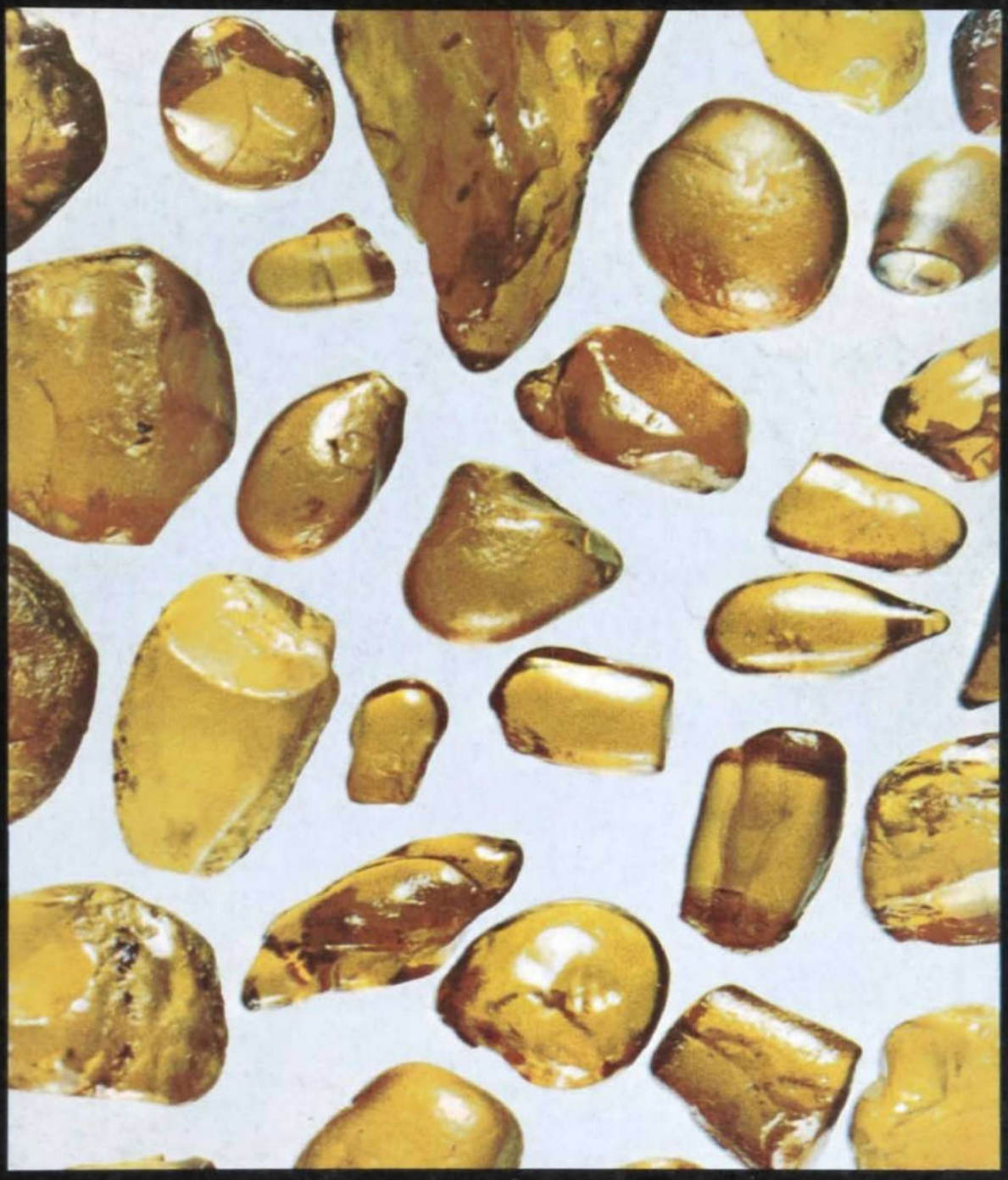
The Beaver

SUMMER 1969



GUARDIAN PHOTO

The "Nonsuch" II clearing Tower Bridge on her way up the Thames to her berth in April this year. Behind the ship is the Tower of London, dominated by the turreted White Tower or Keep. The Tower was ancient when the first "Nonsuch" sailed the Thames in the 17th century, but the exterior of the Keep was altered in its restoration by Wren.

SUMMER 1969
OUTFIT 300
$3 A YEAR

The Beaver

MAGAZINE OF THE NORTH

Editor: Malvina Bolus

Ojibwa dolls of willow withes, grass and slippery elm bark (see page 46)

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COVER

Magnified nodules of Canadian amber.

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ROSEMARY GILLAT

The tracks of man in a wilderness of muskeg and lake between Thompson and Churchill.

A NORTHERN JOURNAL

BY GEORGE WOODCOCK

ROSEMARY GILLAT

Rocks and pools on Hudson Bay at Churchill in northern Manitoba.

GEORGE HUNTER

Fireweed and Fort Prince of Wales at Churchill.

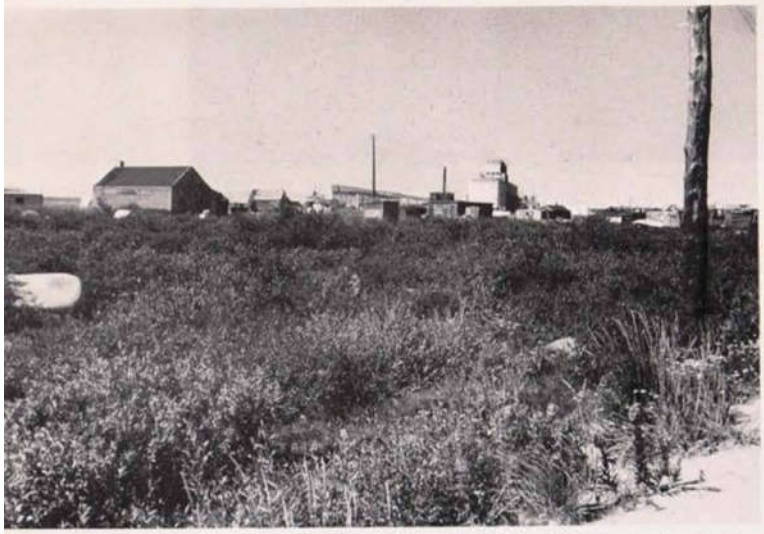
These impressions, a blend of observation, speculation, and comment, are excerpts from a diary kept by the author when in the late summer of 1968 he and his wife travelled across the Canadian North. Mr Woodcock, who teaches English and Asian studies at the University of British Columbia and edits the magazine "Canadian Literature", is widely known through his many published books and articles. The photographs are by Inge Woodcock, taken last year, unless otherwise credited.

CHURCHILL

North from Thompson a land that from the air seems infinitely flat. Stunted taiga forest, lakes, yellow-green marshes with clumps of dead grey trees, muddy slow rivers serpentining towards Hudson Bay. For a few miles out of Thompson, dirt roads, sawmills beside the rivers. Then the empty wilderness. Nearer to Churchill curious ice age formations: perfect circles of trees surrounding piles of whitish limestone rocks, accidental fabrications of ancient glaciers but regular enough to appear the creations of megalithic men. The circles are separated by dull green stretches of tundra. At Churchill, as we drive in from the airport, all the tiny trees, last scouts of the taiga, are one-sided, their seaward branches shaved by the wind of the Bay.

The coastline at Churchill. Ice-sculptured Henry Moore rocks, pools white with water crowsfoot, dwarf tart-fruited wild gooseberries hugging the crevices. A botanical frontier; the avens is Arctic, but the fireweed is narrow-leaved, the southern species. We stand on the low summit at Cape Merry, looking across the estuary to the stone star of Prince of Wales Fort. The beluga whales are rolling in the heavy currents, their backs dazzlingly white above the cold blue of the water. At evening the Indians hunt them from canoes, with harpoon and rifle.

Indian canoes at the whale harbour, Churchill, where the belugas are pulled in for processing at the local factory.



The Flats at Churchill with Métis shanties in the shadow of the most northerly grain elevators of Canada.

They sell them to the cannery, $1 a foot length for whales up to 10 feet, $1.25 a foot above that length; the skin will be canned as muktuk, the flesh sold to feed mink.
(In 1969 the plant is not operating.—Editor)

Churchill—six thousand people spread over five miles and as many subcommunities: an Indian village, an Eskimo village, a Métis slum of shacks—some built of crates and roofed with tentcloth, a ghetto of government officials at Fort Churchill, living in old barracks with utilidors and clubs, all very sahib-like in a northern way, and the townsite itself, near to the docks and the railway.

The townsite: Hudson Square with the H B C, competing supermarket, wooden shed cinema, federal building, and rival Oblate and Anglican missions tucked away in a straggle of side streets, among little wooden houses such as one finds in by-passed and decaying prairie towns; they are worn drab not by time but by eight months of winter. The railway has changed the way of life. Prices in the hotels are little more than in Winnipeg, and the cooking is better. H B C is no longer a fur trade post, but a miniature department store. The highway will be a long time coming up from Thompson—the early seventies at least. But—with five miles of paved road going to nowhere—there are already many taxis, and even a motel. Permafrost makes some other facilities hard to get. A woman taxi driver tells me most houses have honey-buckets, and galvanized tubs filled by hand. "Perhaps you don't get as many baths as you'd like. But I was brought up on a farm. I'm used to it!"

The gravelly dustiness of Churchill. Off the one paved road, the houses are built beside frost-heaving dirt lanes. No gardens or lawns; even the baseball oval is rough, bare ground, so slow is growth here. Churchillians tell of the southerner who arrived in mid-February with his golf-clubs. Point of the story is that he would have been just as outlandish at *any* season, since there will never be anything nearer to a green than a few tufts of mauve-sheened wild barley.

Two ships are standing beneath the grain elevators; one is Swiss! Later, in the Oblate's Eskimo Museum, three of the sailors come in and talk the harsh Schweitzerdeutsch of Basel. It is strange, at a port so far inside Canada, to hear voices from so far inside Europe. On the quay there are Volkswagens; nearest route from German ports to Winnipeg and Regina is via Hudson Bay.

Most of the Eskimos in Churchill are in one way or another connected with the government and relatively well off. But this is really Indian country, as it was when Kelsey and Knight first came, and the Indians and Métis have sure work only for three months in the year, when the ships are being loaded. A few have regular labouring jobs, some fish or hunt beluga in season, a few women work in the hotels, but most are unemployed and on welfare two-thirds of the year. They accept their condition with a mingling of pleasure at not having to work—lacking our puritan ethic—and resentment at their second-class status. They hate the white men as the Eskimo do not—yet.

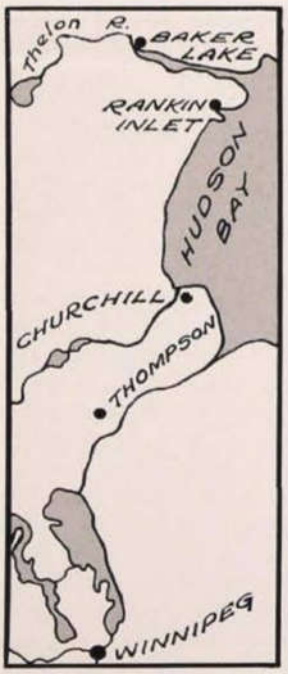
Polar bears are becoming urbanized. Last year 73 were counted in the neighbourhood of Churchill. Ten have been seen at a time at the garbage dump. An Indian was mauled recently.

RANKIN INLET

Rankin Inlet. A long airstrip, stones and gravel, slashing over the tundra. No buildings, but a little crowd waits around the yellow panel wagon of the Department of Transport, the green pickup truck of the Arctic Research and Training Centre, and the H B C tractor and trailer that takes the mail into the settlement. Everyone of consequence is there—the administrator, Neil Faulkner, the H B C manager Vic Pearson, the Oblate Father Papillon, and Bob Williamson, the head of the research centre—three Englishmen and a Frenchman—typical of the arctic pattern, where Europeans have always fitted in better than native Canadians. We bump into Rankin Inlet over a hummocky dirt road, seated in the H B C trailer among the mail. Ahead of us an Eskimo speeds on a skidoo over the stony, snowless ground.

The landscape. Low rocky hills, bare scanty growth of lichen, dwarf bushes, minuscule flowers. I walk out from the H B C staff house, and in ten minutes pick a dozen different arctic plants still blooming in mid-August. On the hillside the great squat cylinders for the oil that keeps Rankin Inlet—this community of 500 Eskimos, 50 whites—alive during winter and during summer for that matter, since the August temperature is still only in the 40s. Above the oil tanks, on the crest of one of the hills, a manshaped Eskimo cairn: how old no one knows, for the people here are all strangers, gathered from many bands coming together after the great barren-land famines of twenty years ago. Stark and decaying, its corrugated iron rotting with the salt air, the tower of the nickel mine that brought them, now abandoned, still dominates the settlement. Below it gaudy pyramids of red and orange oildrums give Rankin Inlet its only colour. Out in the Inlet, the Eskimos, in powered canoes, race around the little vermilion ships of the Department of Transport, and a barge chugs in from Whale Cove down the coast, carrying muktuk for the cannery which a German immigrant operates at Rankin—the only private industrial plant on the whole western shore of Hudson Bay. This year the annual H B C boat has been delayed through running aground elsewhere in the Arctic, and the warehouse in the store echoes with emptiness. This is no longer the catastrophe it would have been in the days before the planes began to fly regularly into the Arctic, but air freight makes goods expensive, and this is a burden particularly on the Eskimo community, since most of the whites are government employees whose stores are brought in by the Department of Transport.

Rankin Inlet is one of the relatively fortunate places in the Arctic. The Eskimos do not like to be idle, and there is plenty of work: in summer construction, in winter the crafts centre; some Eskimos work in the H B store, some in the government office as clerks and interpreters. A few men fish and follow the whale in its season, but, though many were caribou hunters (and teenagers remember the life of the camps as part of their childhood) there are only half-a-dozen men in the settlement who still live off the barren land. They are older men. It is also older men who remember the traditions and, in the crafts centre, stop their work and sing songs for me to record. They are



The plane arrives at Rankin Inlet and mail is loaded into the H B C wagon.

ROSEMARY GILLIAT

Lichens, moss, and berry plants pattern the tundra.

An Eskimo clerk checks out a customer in the Rankin Inlet store.

G. T. HARRINGTON

their own songs, personal property, inherited from their fathers. Okoktuk sings the song of the Hungry Camp; Erkuti sings the song of Caching the Meat. At Rankin the drum dance is no longer performed. We must wait for Baker Lake; there we *may* be lucky.

We try to probe for the social structure of Rankin Inlet. Among the whites it is obvious—the ladder of bureaucratic hierarchy, since more than eighty per cent are government employees, with the missionary, the H B C people, Bob Williamson, occupying honorary positions towards the top. About the Eskimos we know only what we are told, which is as much as most of the resident whites know since, like us, all but three speak no Eskimo. There is no tribal structure, since The People never banded together in more than extended family groups (rather like Hindu joint families), but in Rankin, where people from coastal settlements and inland camps came together, an undefined stratification has arisen, with the coast people—more prosperous in the past and more practised in the white men's ways—forming an upper stratum. Yet some of the celebrated artists, like Tiktak, are men from the barren land who once hunted the caribou.

The Eskimo here have their own community council, their own housing committee which assesses rents for the government-built houses, and here men rise by intelligence and oratory, which is esteemed. But there are other men who, if not exactly powerful, are still feared for reasons older than government-fostered committees. These are the men still reputed to be shamans, who either practised in the past, or have received the "gift" by descent. A young woman says there are three of them in Rankin Inlet; she refuses to name them. The white men say they no longer practise. The Eskimos evade answering when we ask this question. A missionary asserts that the Eskimos no longer *believe* in the powers of the shaman, but fear him in a precautionary way.

Sadie, 16, a girl from Rankin, says of Churchill: "What a big place! Once I got lost there!" One of the men has been to Montreal. "There were four of us, among all those people," he says. "We might have died, and nobody would have known!"

9.45 p.m. The power station hooter. It is curfew time. By order of the Eskimo Community Council, all children under sixteen must now be indoors.

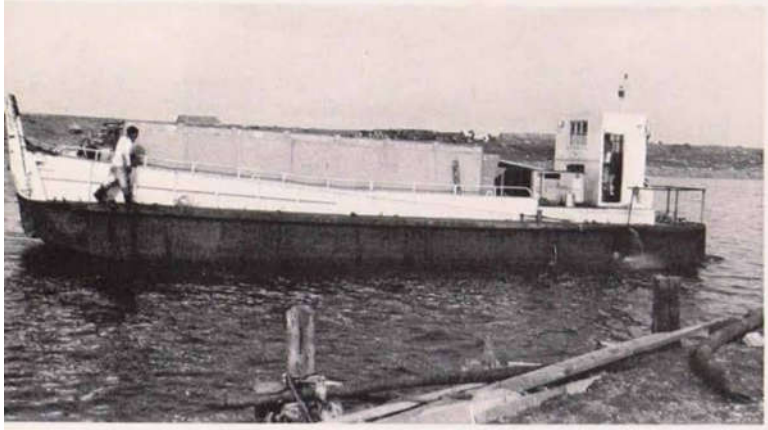
Tiktak the carver. A man with deep-lined mobile face who seems to be in his fifties but is not sure of his own age. He is partly crippled by a fall, so that, though he does some hunting still, he cannot go far from the settlement. A great humour, so that sometimes one feels it is a life of laughter that has creased his face. A shy giggle and oriental protestations of inadequacy when we praise his work. "I am a bad carver!" He has been carving only five years, and maintains that he still works without premeditation, taking the stone and letting the shape that is in it emerge. He wears a singlet, his wife a cotton frock like a prairie pioneer woman, but when he comes out to be photographed, Tiktak puts on gumboots and a loud blue check jacket. A portrait of Trudeau hangs on his wall. He thinks the old life of the barren land was better than the new life. Caribou meat was better than store food, which he and his wife agree is "too sweet". Now, he says, he must work all the time to earn the money to live, because almost all his food is bought.

Caribou is still eaten raw in Rankin; so is polar bear. One bear, whose skin we see drying, was killed a few days ago, and still it is being eaten. Outside the Eskimo houses the flesh of arctic char turns mahogany brown as it dries in the air into food for the sleigh-dogs.

The Eskimo families all talk of children dead, suggesting high death rates in the past. They never know offhand the exact number of children they have had, but count slowly, turning down a top finger joint for each child. Is this bad memory? Or a lingering difficulty with numbers? Or perhaps some superstitious fear of being too exact? Half the families we meet have children adopted according to Eskimo custom.

Selina, a sophisticated little miss in a mini-skirt and open-work stockings who addresses us in English better than any other in the Eskimo village. We find she has been in Ottawa training as a nurse. She is looking forward to returning there. Does she intend to go back and work among her people? She would much prefer to go to Vancouver!

Autoboggans are replacing sleds as transport of the North.



A refrigerated barge from Whale Cove brings muktuk to the Rankin Inlet cannery.

Eskimo housing at Rankin Inlet.

People of the North: the Vic Pearsons and the Robert Williamsons at Rankin Inlet with friends.

The white fox is the principal source of fur income at Rankin as elsewhere. It runs in a four-year cycle linked to that of the lemmings. This is a low year; Vic Pearson expects to gather no more than $8,000 worth to stack in the cool attic above the H B store. During the season only four or five trappers have been out full time, out of 500 people.

In the south we have always believed Eskimos wilted in heat. In Rankin it is we who wilt, for all the Eskimo houses are extravagently over-heated, to an average temperature of about 75°F.

Eskimos have no vocal way of signalling over long distances, like Swiss yodelling or Tibetan "far-away singing"; they are so tuned to perceiving the slightest movement at a considerable distance that they communicate over great spaces by semaphore of the arms.

Motor toboggans are quickly replacing dog-sleighs; the RCMP now search with them, and there are less than half-a-dozen dog teams in Rankin. Similarly, canoes have replaced the kayak and the umiak, both of which have belonged for years to the museums and to history.

Northern prices. A good meal at the Hudson Hotel in Churchill costs $1.75. At the bunkhouse in Rankin it costs $5.00. An index of the difference between a community served by rail and one served only by air and the annual supply ship.

Tiktak, the famous sculptor, and his family, at Rankin.

BAKER LAKE

Leaving Rankin Inlet, we fly over a scape so dotted with small pools that there seems barely more land than water. A jigsaw of blues, buffs and browns—little rock visible—the smooth undulations of the tundra. Suddenly, grey-dun specks fan out beside a lake like a small explosion; a little herd of caribou, smaller than flies, scared by the plane.

Finally, we see the spread of Baker Lake, and the broad waving band of the Thelon River, cutting its silvery course through the tundra to the west. The first view of the settlement: white, red-roofed buildings of missions and stores strung along lakeshore, the lines of Eskimo huts behind them, the buff specks of tents spattered on the tundra beyond.

Wayne Sinclair, H B C manager, meets the plane, with the administrator, and Father Choque in beret and mackinaw. We are to stay with him at the Oblate mission. It is a one-man-establishment: tiny church, guest rooms, Father Choque's apartment, all under the same roof. Father Choque does everything, conducting services, keeping the house tidy, cooking, making bread, cutting and hauling ice for water from the lake in winter, helping with the problems of all the people who come to him (and by no means all from his own flock), scanning the shore with his binoculars to identify arriving planes, and maintaining communication through short-wave radio with the missions in the rest of the north. He has been here since 1944, longer than any other man, white or Eskimo, in Baker Lake. When he first came, no Eskimos lived here. There were the Anglican and Oblate missions, the H B C and the RCMP, and the Eskimos came only at certain seasons to trade. They lived on the barren land, in little groups of two or three related families, staying put in igloos during the winter. It was only at the beginning of the 1950s that some of them began to stay permanently in Baker Lake. In the past Father Choque would visit the people living on the land. He went in winter, by dog team. In summer they would be on the move, with their skin tents, and hard to find. "Those were good days," he says sadly.

Sound of gulls wailing: large grey and white gulls. The arctic terns hover like kestrels, drop with stone-like rapidity, and fly with beautiful sickle-winged grace. Small greyish birds flit over the tundra with undulating flight. This morning a falcon sat for an hour on an old sleigh on the shore. Rarely, white falcons are seen.

I walk beyond the settlement on to the tundra, like a great dry sponge, or, even more, like a landscape of loofah: the tall lichens, pale grey and dull green, matting with alpine heather, blueberry, bearberry, and a few ferns; the tiny leaves of the miniature shrubs already turning bright green and orange. In some places purple splashes of arctic fireweed, yellow of arctic poppy and arnica. In the gullies going down to the lake are aged willows, two feet high, gnarled and twisted like bonzai trees.

White men are called Kabluna, which means eyebrow. Sometimes this is applied to Eskimos who have become more or less acculturated through government employment. Thus there are three groups in Baker Lake, the few acculturated and usually privileged ones, the equally few (and mostly elderly) ones who try to sustain the old hunting life, and the great intermediate majority adopting much of the white way of life but with little purpose or direction as yet. A people on the way to alienation, but still a generation behind the Indians, and so not so hopeless and potentially explosive; but generations these days pass quickly. At present they accept too easily, with smiling helplessness, what is done for and to them. This is obviously more pleasant for everyone than the resentful sullenness of so many Indians. But is it more healthy? One gets the impression that, in relation to their numbers, the government is doing far more for the Eskimos than for the Indians—perhaps trying to assuage our general feeling of guilt for having neglected the Indians—but without much imagination or foresight, because bureaucrats still see Eskimos as *numbers*. The creativity and imaginativeness of the Eskimos are being only slightly utilised, and then often wrongly. Think of much Eskimo art, mechanically produced under dreary working conditions in government craft centres. Think also of the exploitation by official agencies theoretically set up to aid Eskimos. We calculate that, on the average, through the triple markups before his work reaches a store "outside", the Eskimo artist gets 16 per cent to 20 per cent of the price for which one of his sculptures will eventually be sold. A white artist, selling a painting or sculpture through a gallery, gets 66 per cent!

An Eskimo woman, whose husband had received $200 a week before, went to the administrator for welfare. He asked what had happened to the $200. It had been spent on food, soap, and paraffin, she said. Surely not all of it! Well, there was also $60 for a bicycle. Her child had been unhappy because his friends had bicycles, so she could do nothing but buy him one. People on the barren land, where tokens were used in trading less than ten years ago, have still very little sense of the value of money, while they retain the old summer attitude of feast-or-famine (though they seem to have lost the providence that led them to set up caches of meat at the end of the autumn to tide over the winter). Consequence: they buy to the bottom of their pockets without thought of cost or value: imported sliced bread at 75¢ a loaf, small apples and oranges at 45¢ for two fruit. Even at such high airfreight prices, 25 cases each of apples and oranges vanished in half a day at the local store.

FRED BRUEMMER

The settlement of Baker Lake; in the foreground the boggy land is dotted with cotton grass.

While the whites in Rankin and Baker Lake bake their own bread, the Eskimos prefer bannocks of flour and lard, and eat great quantities of pilot biscuits.

August welfare at Baker Lake, $3,200. In winter it will average $7,000 to $8,000 a month, often at the rate of $200 a family. Now—in late summer—there are twenty Eskimo men in Baker Lake earning $400 or $500 on construction. In December, when the work is ended, most of them are expected to go on welfare.

In the Baker Lake area there is now only one family which still obstinately lives on the land, and five or six other families—out of 600 people—go into camp during summer. It seems as though the last snowhouse was built last winter, and there will be no more.

Last year at Baker Lake 27 children were born, an astonishing birthrate of 45 per 1000. One woman in that year had her sixteenth child.

Sunday Services in the Arctic. Father Choque rings the mission bell in the morning, and with the single monotonous toll I am taken back fifty years, to the village church of my childhood, as in many ways the North returns one to a younger, more pristine age of man. The whites gather in Father Choque's little sitting room, with the geraniums blossoming in the window: the administrator's and school principal's families, some French Canadian and Irish summer workers, the nurse from Hong Kong, wearing a mantilla of black lace. We troop together into the chapel, finding the back filled with Eskimos—but there are some Eskimos also who mingle with the whites in the front rows. Altogether there are less than fifty of us, but the small church is full. Father Choque, in green vestments that contrast with his daily mackinaw and beret, conducts mass in Latin, preaches in Eskimo and English. An elderly Eskimo plays the harmonium, the children alternately cry and sleep, a woman in front of me suckles her child during the sermon. One would have thought this simple but colourful ceremony not as alien to the Eskimo as the Low Anglican service at the other end of the village, but such matters seem to have been determined in the Arctic almost entirely by what church happened to arrive and build up loyalties first. In Baker Lake it is to the Anglican church that the people flock

at evening along the insect-ridden lakeshore, and we have difficulty squeezing into the seat at the back of the church, which holds at least two hundred people. Immediately, when I have adjusted my tape recorder and can begin to take notice, I am reminded of the missionary churches of south India, for the women and girls are on one side of the aisle and the men and boys on the other, while the singing, as in the Syrian churches of Kerala, is unaccompanied by the organ. But through the open windows one sees not coconut groves, but the tundra, splashed with the purple of arctic willow herb, and the mosquitoes sail in from the hot night in clouds unimaginable in most parts of India. With too obvious appropriateness, the first hymn is "From Greenland's icy mountains to India's coral strand", sung lustily and unhesitatingly, like all the other hymns; the Eskimos are well trained, since there are services on Tuesday and Thursday nights as well, lest Satan find for idle hands some evil. Much of the service is conducted by the old Eskimo catechist, who wears a medallion on a red ribbon over his surplice. The missionary, who came direct from England four years ago with virtually no orientation, preaches in a halting Eskimo, to the accompaniment of much coughing and crying, while the older children play in the aisle with their plastic cars and aeroplanes and the adults assume a look of seemly and impenetrable boredom. One wonders how much more Christianity really is in the lives of the Eskimo—or most of them at least—than a routine in a life impoverished by the loss of the hunting pattern.

From the mission we can just see the white cross of the cemetery up on the hilltop behind the settlement. On the way there, climbing up from the beach, we pass the one-room plywood boxes which the government first put up as Eskimo houses; the doors are all open to give ventilation. Around them water stinking of sewage stands in deep puddles, where the children play. Beyond this slum of modernisation, the tents—widely spaced over the tundra—seem healthier and more appropriate to the Eskimo life; outside them the dogs, large, shaggy and dirty white, lie about at the end of their chains. (Unleashed dogs that wander through the settlement are shot, for fear of rabies, endemic among wolves and foxes in the barren land.) Higher up we pick our way between bogs white with cotton grass, sometimes jumping from one spongy tussock to the next. There are berries on the minute blueberry bushes, rather tasteless, and little mauvish mushrooms and puffballs. On higher levels, as we climb, pink bearberry flowers and large-cupped white heather. Also cushions of minuscule pinks. The cemetery lies on a rock platform to which one climbs through defiles between piled cubical rocks, which remind me of some of the Inca ruins near Cuzco. The rocks are bright with green and orange map lichen. Above us now rises the white cross, tall and over-bearing. The graves are stones piled over rough wooden boxes, with a small white wooden cross at the head of each, bearing English and Eskimo names of the occupant—Eskimo name in syllabics—and dates of birth and death. Many small stone piles suggest the high child death rate of the recent past. The Roman Catholics and the more numerous Anglicans are separated even in death by a no man's land of bare rock, empty except for two uncrossed graves. The RC's have a stone monument to a Father who drowned when his sleigh went through the ice in the Back River; his body was never found. Anglicans have two stone monuments, put up by RCMP for Eskimo special constables. No white men are buried here.

From under the great cross, splendid views of little upland lakes set like turquoises in the undulating land, and Baker Lake itself; its hazy blue waters, golden sandbanks and yellow-green shores reminding one of Titicaca, as the tundra in general reminds one inevitably of the Andean antiplano, one so far up in the north, the other so far up in the clouds, and therefore alike.

Talk with S. an old hunter and trapper, who carries sewn on his chest the number by which all Eskimos are recognized—like convicts—by the non-Eskimo-speaking officials who lord over them. He is 60, and this is his first summer off the land; his legs are letting him down, and there is work to be got with the Department of Transport. Normally he would go in September to kill and cache the caribou that would feed him and his dogs for the winter of trapping. He would take only tea and sugar (curiously Eskimos seem to feel no need of salt); tea and caribou would sustain him through the winter. Often the caribou would be eaten raw, though when willows were available for fuel he would try to cook once a day. If he ran out of tea, he would drink caribou broth instead. Fish he ate only in emergency; even arctic char, which seems to us so much of a delicacy, is regarded by Eskimos as fit only for dogs. S. trapped mainly white fox, with some wolf and wolverine; the best trapper in Baker Lake, he never went short even in the famine years, for he was ready to go far on his own in search of game, relying on his knowledge of the land and a good rifle. He believes in having the best

Sled dogs—a diminishing breed—at Baker Lake.

FRED BRUEMMER

Shopping at Baker Lake where the clerk is an Eskimo.

of both old and new worlds, boasts of possessing a dog team and *two* skidoos!

S. does not have much use for the missionaries, or for the new administrators, but he thinks there was good in the coming of "the law". Before "the law" came, he says, the Eskimo hunters killed without discrimination, for the excitement, slaying from kayaks with spears and later guns when the caribou crossed the rivers, and keeping pace with the herds by laying their paddles on the backs of the swimming animals. Thus many beasts not needed for food were killed each season. Like most Eskimos and some white oldtimers, S. does not accept the view of the wildlife bureaucrats that it was a vast reduction of the herds that actually led to the great famines of the late 1940s and early 1950s. He believes the caribou merely showed their intelligence by not returning to places where their relatives had been killed indiscriminately and by changing their migration routes; he firmly believes vast herds still roam the remoter parts of the barren land. In the same way many Indians long refused to acknowledge the virtual destruction of the buffalo herds. But S. would not like to be compared with the Indians; like most Eskimos, he despises them.

S. does not like the present. He says the young men no longer know how to track or hunt a caribou, and the girls no longer learn to sew; even the Eskimo language, he complains, is declining, since the vocabulary narrows because non-hunters do not know the special terms applying to the hunt and to the hunted animals under special conditions, or even to snow and ice, which have different names in different circumstances. Like other Eskimos, he complains that the present government-controlled educational system, which keeps boys in school all winter and sends them away for two years' residential schooling in Churchill during adolescence, makes it virtually impossible for them to acquire hunting skills through apprenticeship in the barren land. He believes some way should be devised to enable modern knowledge to be imparted without losing the old ways. What, I wonder, would be the opinion of the Beatle-haired young motor cyclists who drive to nowhere every night along the dirt roads of the settlement?

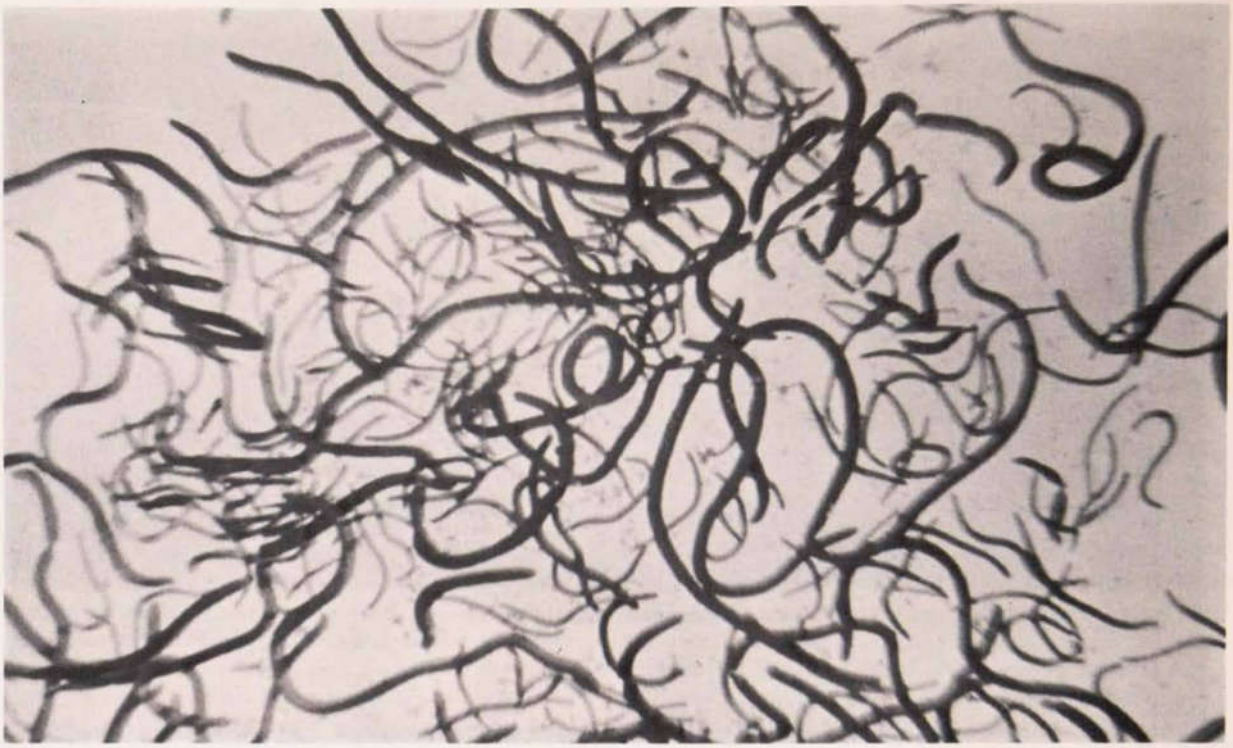
The new school at Baker Lake, modern and as well equipped as a school in the south, but clearly devised and operated on assumption that the educational needs of Eskimo children are *the same* as those of non-Eskimos. There is no hint that one is among a people with their own culture, a distinct way of life. I do not see a single word written in syllabics, or any suggestion that the Eskimo are a people with a great art and a unique tradition. The alphabet is taught by B for Bull and C for Cat in a land of Bears and Caribou. No Eskimo language is taught; even the teaching of syllabics which the missionaries undertook is absent from government schools, probably because, like government officials, the teachers know no Eskimo. Many Eskimo parents, worried by the situation, are teaching syllabics to the children in their homes. Inexperience of many arctic teachers, who often come on their first assignment, in effect spending their time learning rather than teaching.

On the beach at Baker Lake; the doctor's plane, on floats, is pulled up in the background.

A last home on the edge of the tundra.

In the North interest in the outside world becomes less acute and events there seem more remote. There are no daily papers, no television, and radio programs need patience to get regularly. Most people rely on weekly summaries like *Time*, and when the twice-weekly plane fails to bring such reminders, the ever existing feeling of a tenuous connection with the outside is increased. This is so even in summer, when transients are always passing through. It must be infinitely more so in winter, when the supply of visitors dries up, and the planes sometimes do not come for weeks on end. Even the passing stranger finds himself taken up in the relative isolation of these little communities and curtained by it. It becomes a refreshing holiday from the world where the mass media have so deafeningly filled existence.

Our last night in Baker Lake. At 11 p.m. the phone rings in the H B C house. The drum dance is on, the people gathering, and we go along the dark sandy road to the IODE hall—the hall of the Eskimo community. A hundred people are seated around the bare hall. Most are Eskimos; the H B C people are there as well, and some of the French Canadian construction workers, but none of the government people and the joke goes around the room that the Anglican missionary, who is very down on such things, will have a theme for his sermon next Sunday. Three old women, sitting together on one of the benches, are chanting shrilly as we enter; one is shrivelled to the tininess of a child, and the other two are swollen and enormous, but all wear shapeless berets and sealskin kamiks. The drum, about three feet across, lies in the middle of the floor; it is a single hoop of willow branch from the treeline down the Thelon river, on which is stretched a caribou skin, dampened with water to keep it taut. The five dancers, all middle-aged men wearing gum boots, sit together on another side of the hall from the women. After a few minutes one gets up and begins his performance. He holds the drum in his left hand by a short handle, and beats the rim—not the skin—with a short stick wrapped round with caribou skin, which gives a sharp resonant thud. He always beats upward, keeping the drum in constant motion and striking alternate edges as they come lowermost. At first he stands, bending his knees to the first slow and tentative beats. Then the speed and the rhythmic vigour of the drumming increase, the women sing more loudly, the man begins to stamp, and to utter loud hoarse cries. Suddenly, it is all over, the drum is dropped, the man returns to his place, and we wait until the next man is ready. Even in this dingy hall, some of the magic remains to remind one of the days when this was a dance connected with the hunt; one dancer does a kind of pacing Russian dance, squatting low on his haunches, and then advancing on the audience with growls and menacing tread, suggesting the anger of the hunted bear. There is a great deal of clowning, to which the audience responds with delighted laughter; once a young woman gets up and does a parody of the men. When we return to the mission, along the cold starlit track at half past one, Father Choque is still up. As we drink a nightcap, he shakes his head reminiscently. The drum dance, he remarks, will never be what it was in the old days, held in mid-winter, in an igloo twenty feet across, with the beating and chanting echoing in the dome until it seems as if the sky would fall. ◆



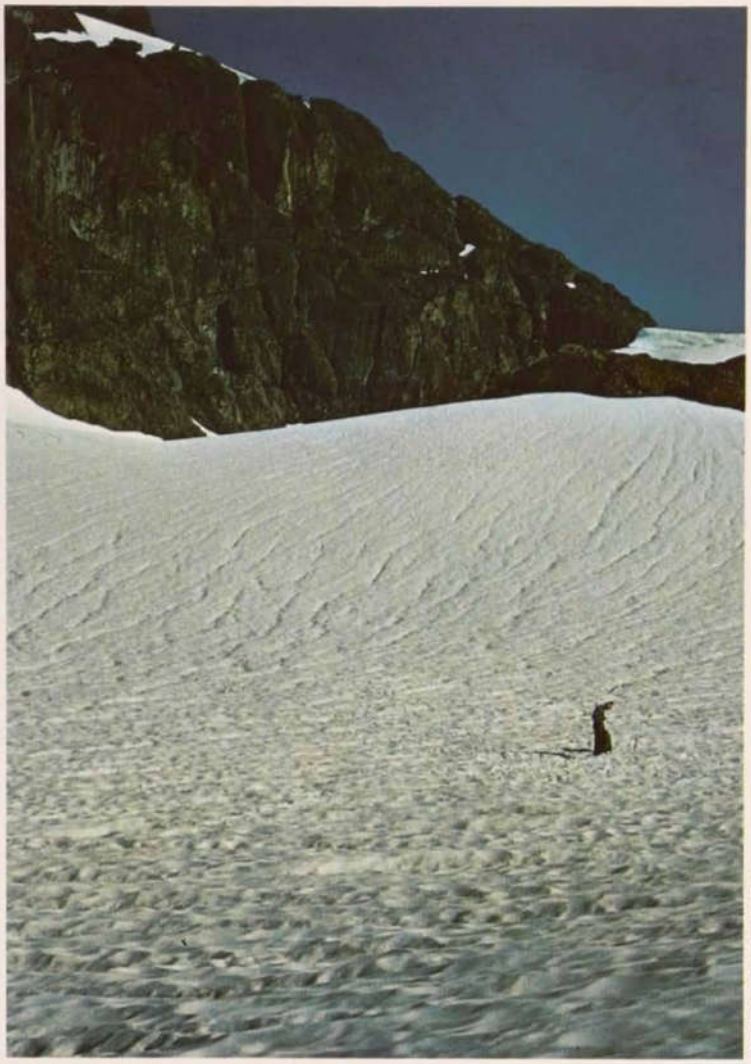
ICE-WORMS

BY DOUGLAS LEECHMAN

PRACTICALLY EVERY TOURIST who reaches the Yukon or Alaska is exposed, sooner or later, to ice-worms. They may be offered to him in the form of an "ice-worm cocktail", and thousands of people have actually been induced to swallow them, unaware that the "worm" is but a short bit of vermicelli, a substance most suitable for this mild deception since vermicelli means "little worms".

These tourist ice-worms were but a myth, thought up in desperation by a newspaper man, E. J. White, who worked on *The Dawson Nugget* at the turn of the century and came out with this astounding story. He used to write a column under the pen-name of "The Stroller" and was often at a loss for material, a situation familiar to all columnists. His own account of the incident shows him and a fellow reporter, Casey, sitting in the office on a bitter sixty below zero day, with no news, all telegraph wires down, and all trails blocked. There had been no news for days. Suddenly the boss and owner of *The Nugget* is there, threatening them with instant dismissal if they don't get off their launching pads and go out into the highways and byways and come back with a story. Casey, with his fine Irish imagination, got an Indian chief to tell him how he discovered the remains of Noah's ark on top of Mount Koyukuk, a notable exercise in invention.

For his part, The Stroller invented ice-worms, an even more fantastic venture. Whether he knew that such creatures actually did, and do, exist is somewhat doubtful. His story had it that a recent cold spell, seventy below for days, had resulted in a heavy fall of blue snow, and the ice-worms had all come to the surface of the



COURTESY MICHAEL TYNES

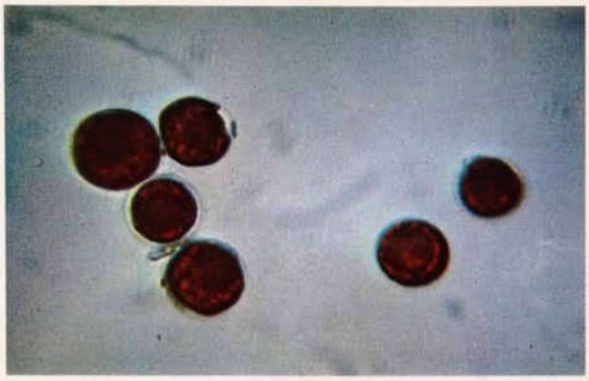
Cliffe Glacier on Vancouver Island where ice worms were found.

glaciers to enjoy the cool air, and their chirping was so loud that the good people of Dawson City could get no sleep.

The fact that it rarely snows when the temperature is very low, that there is no blue snow, and that there are no glaciers anywhere near Dawson City, was not allowed to spoil a good story, and this fantastic invention, as he presumably believed it to be, became the topic of the town. Everybody was talking ice-worms, the bartenders shook up ice-worm cocktails, which cheechakos and tourists were induced to swallow, Robert Service described them in his "Ice Worm Cocktail", and the popular song "When the Ice-worms Nest Again" was born. The Stroller had written his story and kept his job.

Real ice-worms were first reported in 1887 from the Muir Glacier in Alaska by Dr G. F. Wright, who found them in shallow pools on the surface of the snow. He described them as being about an inch long, and as large round as a knitting needle. In fact, most of them are thinner than a darning needle and look like short bits of black cotton thread. Since his first observation, they have been reported many times and specimens have been sent to many museums, including the State Museum in Juneau, Alaska, the University of British Columbia in Vancouver, and the American Museum of Natural History in New York.

Though now comparatively well known to mountaineers and glaciologists, very little work has been done on them until recently. It was easily determined that they are closely related to the common earthworms found in our gardens, but how they survive the almost perpetual cold, where they deposit their egg capsules, what they



MICHAEL TYNEN

Red snow, the algae Chlamydomonas nivalis.

find to eat, was totally unknown, and still remains so.

In the summer of 1968, Dr Michael J. Tynen, under contract to the National Museum of Canada, worked on the Cliffe Glacier on Vancouver Island and identified five separate species of ice-worms. He was able to collect specimens and to make some observations on their habits. They seem to frequent the drainage pools, clambering about among the coarser ice crystals, but one observer, when cutting steps in a glacier with an ice-axe, found them several inches deep below the surface. Dirty water, that is water with sediment and sand in it, seems to repel them, and they tend to come to the surface only when the light is weak, rather than in bright sunshine.

So far, they have been recorded only from the higher glaciers along the North Pacific Coast from California to Alaska. How they arrived at their present distribution is another of the many problems they present.

Food? On the surface of a glacier? Well, what is there? The answer would appear to be the numerous species of snow algae, of which "red snow" is the most familiar. On examination under a microscope, some of the worms do appear to have something in their intestinal tract that might be cells of algae. It would appear probable that the metabolism of an ice-worm proceeds at a slow pace and that small quantities of food are sufficient for its needs. As for enemies, they would seem to have few, if any, though one observer reports seeing birds, phalaropes he thought, apparently feeding on them.

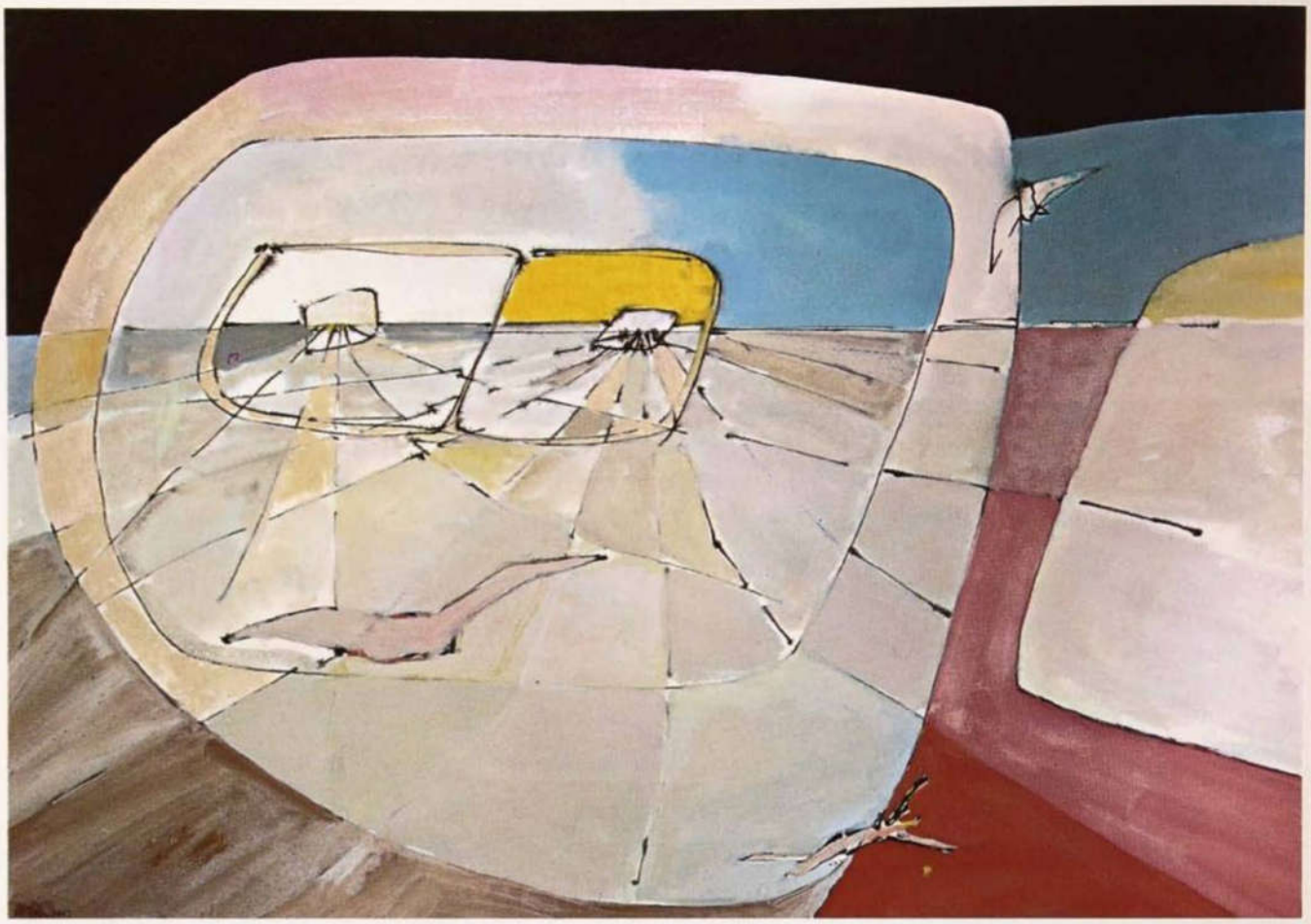
One species of ice-worm has been labelled *Mesenchytraeus solifugus*, a name a good deal longer than the worm who bears it, but further studies, such as the work proposed by Dr Tynen for the summer of 1969 will lead, in all probability, to changes in nomenclature.

We have known for some time that "red snow" does occur, and now we are assured of the reality of ice-worms. That leaves us with the Abominable Snowman, the Loch Ness Monster, and the British Columbia Sasquatch to deal with. ◆

RUTH KIRK

INTERPRETATIONS OF ARCTIC EXPERIENCE BY GEORGE SWINTON

The artist interprets his feelings flying over and travelling in the Eastern Arctic, including, in part, the area visited by Dr Woodcock and described in his Northern Journal.



BY GEORGE SWINTON

Eskimo Camp

BY GEORGE SWINTON

Rankin Inlet

HUDSON BAY RODEO

BY JAMES KINLOCH

FRANCIS SPENCE, champion hunter and tagger of white whales and the first man ever to ride one, is a Cree resident of Churchill, one of a comparatively small number of Indians and Eskimos who provide the bulk of the commercial beluga catch of Hudson Bay. The beluga's scientific name is *Delphinapterus leucas*. It is commonly known as the white whale.

Francis was a leading member of the crew recruited for a tagging program which began in 1967 and which during the past two summers has sent 850 white whales into arctic and subarctic waters wearing numbers. These tags are worth $2 each to anyone who returns them with details about their recovery.

The project instituted a new kind of beluga hunt, a sort of marine rodeo in which the hunters do not kill but simply tag their quarry, either by harpoon or by hand. Once the whales are sighted, the chase becomes a mêlée of powered canoes, men, ropes, flying harpoons and frantically circling animals, the quiet of the Bay shattered by the roar of outboard motors, shouts of the canoe men, and all sorts of bangings and splashings. It's probably the noisiest research effort in biological science.

The whale riding started by Francis Spence was a sudden development which added a sporting element to the tagging operation. No one seemed to think it might be dangerous, although if a rider were thrown he could be severely injured by a flick of the whale's tail.

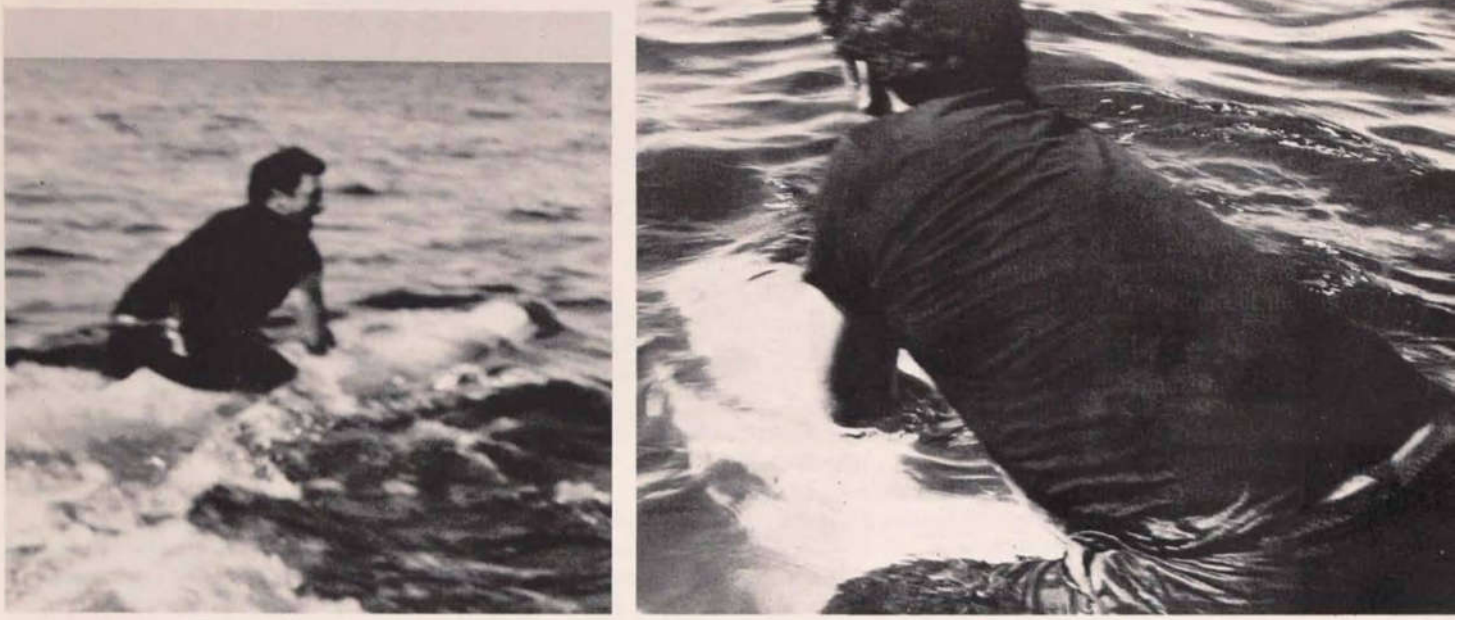
The tagging expeditions, to the mouth of the Seal River, 30 miles north of Churchill, were organized by Dr D. E. Sergeant of the Fisheries Research Board's Arctic Biological Station at Ste Anne de Bellevue, Quebec. Dr Sergeant has been studying beluga for more than twenty years, and he directed the first tagging operation himself.

For centuries beluga have been harpooned, shot, netted and trapped in primitive weirs in Hudson Bay, on the Mackenzie Delta (*Beaver*, Winter 1965) and at Pangnirtung and other points along the arctic coast, always close to shore, and usually in the mouths or estuaries of rivers. During the summer the whales go in with the tide twice a day, presumably to feed on small fish such as capelin.

With luck in the weather and the presence of enough beluga, a 20-man team in ten canoes can tag several hundred animals in three or four days, either by harpoon or by hand. Sometimes they can herd as many as 500 into a small bay. In shallows where there are no rocks, it is not always necessary to rope the whales for tagging, as they are sometimes stranded in inches of water until the next tide takes them out. Beluga can survive for short lengths of time in little water as long as they can keep their bodies wet. In the case of whales driven into the shallows, the tags were affixed to the dorsal ridges with a

Modern photos by the author, journalist and former CBC news editor, now with the Fisheries Department.

Belugas herded into shallow water where they will be tagged by the scientist in charge.



Francis Spence of Churchill mounts a white whale and heads out to sea on his unusual steed.

pair of special pliers; in the deeper water the tags were sunk into the animals' hides by means of an ingenious harpoon which could be withdrawn after each hit.

One of the first whales tagged in 1967 was captured about two months later in a net set by Eskimos at Repulse Bay, 500 miles north of Seal River. This partly cleared up one of the marine mysteries which have hampered the Research Board, which has to have facts about the beluga's habits in order to recommend management procedures to the authorities concerned with the exploitation and survival of the species. Until now the scientists, who need to know whether the populations of beluga are purely local or whether they intermingle and move up and down the coast and deep into the Bay, had no means of finding this out except by guesswork, based on such uncertain factors as the size of the animals and observations of their movements made from the air.

The beluga, one of the smaller members of the whale family, is similar in many ways to the dolphin and porpoise. It is a traditional source of food, oil, and rawhide for Indians and Eskimos and, to a lesser extent, the residents of the shores of the Gulf of St Lawrence.

The Repulse Bay tag, the most significant of the recoveries to date, confirmed Dr Sergeant's previously held belief that beluga of the Eastern Arctic spend the winter in western and northern Hudson Bay and move south in summer. (The beluga of the St Lawrence are believed to be virtually cut off from the Hudson Bay and Baffin Bay populations.)

Until the present program was started, beluga had never been tagged, so several methods were tried. The technique of herding the animals into shallow water, a regular hunting method used on the shores of the Arctic Ocean and brought to a fine art in Newfoundland with pothead whales (*Beaver*, Summer 1958) was strange to the Cree and Chipewyan hunters of the subarctic waters around Churchill. Their hunting habits are to seek out and chase individual whales and get practically on top of them before the kill. This technique, of course, is made to order for the use of harpoon tags, and that's when the scene, with boats milling around at top speed above the swiftly dodging whales, has all the excitement and noise of a western roundup. The harpoons were made specially for the job by the Research Board so that the heads could be withdrawn, leaving the tags firmly placed.

Tagging by hand presented a greater problem at Seal River, but after some instruction the Indians were able to restrain themselves from gunning their motors whenever they saw a whale. They learnt to form an arc with their canoes and ease the whales slowly into the shallows, shouting, banging oars on gunwales and throwing stones into the water to keep the animals from turning back and escaping under the canoes to deeper water. Cast nets were tried but proved to be unnecessary for holding the whales; it was simpler to improvise lassos out of bow ropes to hold the beluga fast by head and tail while the metal tags were fastened to the dorsal ridge by the scientist in charge. This meant jumping into the chilly water and evading the thrashing flukes of the captive whale, but a team system was soon worked out and a technique developed. During the first experimental efforts, after two or three whales had been tagged, John Dick, skipper of the expedition's supply boat out of Churchill, who was along for the fun, straddled one of the

whales. Beluga riding then became a new sport. Francis Spence climbed on a whale as it was released and rode it like a cowboy for thirty feet or more into deep water. He and his brother Bennett, natural leaders of the Indians employed on the expedition and two of the most successful whale hunters at Churchill, did everything they undertook with a flair—whale spotting, boat manoeuvring, harpooning and shooting. The tagging project was a welcome change to their regular work.

In professional hunting in the river mouth at Churchill, the two-man canoes, powered by 18 or 20 hp. outboard motors, can just outspeed the beluga at a rate of about six knots. The bowman, who is also the harpooner, sights the whale and signals the helmsman as they give chase. The harpoon, which does not kill, is attached to a buoy, usually an empty gasoline can, and after it is struck the whale becomes an easy target for the rifle shot which finishes it off. The buoy also enables the team to recover the dead animal and tow it to the reduction plant. If it sank in deep water it would be lost.

When the plant is in operation, the hunters are paid for their catch on the basis of the animal's size, at the rate of $1.25 a foot. The average length is about 11 feet, with some whales going to 15 feet. An 11-footer weighs about 1,200 pounds. At Churchill usually fewer than fifty people obtain commercial licences, and most of the hunting is carried out by about twenty experienced men. The 1967 catch was 480.

Commercial exploitation of the beluga has been sporadic. Over the years a number of enterprises have been established and have lasted for varying lengths of time to produce oil from the blubber, meal processed from the meat for animal feed, and fine leather. The meat of white whales is perfectly good for human consumption and beluga steaks could become a gourmet item. Eskimos are fond of muktuk, which is made from the skin of the animal and a one-inch thickness of the blubber next to it. Strips of this are dried in the wind and sun, cut up and boiled in water. Sometimes muktuk is canned, or marinated in blubber oil and stored for later use.

Whales break surface as they are driven into shallows. The net held by the man in the boat was not needed.

The Beluga Protection Regulations, to permit controlled sport hunting of white whales as well as commercial operations, were written into the law in 1965, and are administered by the federal Department of Fisheries. Under them, sport hunters are required to engage local guides, who must be Indians, Eskimos or "persons of mixed blood". The sport hunters are allowed to keep 25 pounds of meat from each beluga killed (they are limited to one a day and two for the season), and may also take home the whale's jawbone as a trophy. The rest of the animal must be given to the guide, who may sell it to the whaling plant.

Licences for the sport hunting of beluga are issued to area residents, other Canadian citizens and non-Canadians for $10, $20 and $40 respectively. Residents of the area who hold permits are not required to hire guides and are allowed to sell their catch to the factory themselves.

The Indian Affairs Branch of the Department of Indian Affairs and Northern Development organizes all sport hunting both at the main reception area at Churchill, where living accommodation, guides, boats and equipment are available, and at the Seal River outcamp. Indians, Eskimos and Métis do not require a licence to kill beluga anywhere in the North for domestic use, and members of the Royal Canadian Mounted Police may also kill them when food for themselves or their dog-teams is needed. The commercial hunting of white whales in Hudson Bay, as carried out at Churchill and, to a lesser extent at Whale Cove, 150 miles to the north, is limited to 800 animals for the Churchill area and to 500 for the area north of the Manitoba and Northwest Territories border. The sport catch is included in the quota, which is scientifically based on a safe sustainable yield from the large herds which have been assessed from the air.

The commercial utilization of Hudson Bay beluga goes back to 1688, when the Hudson's Bay Company sent 28

The outcamp for tagging operations near the mouth of Seal River.

White whales caught in a net at Churchill, photographed in 1889 by James McDougall.

casks of train oil (blubber oil) to London. Samuel Hearne reported that in some successful years in the 18th century the post at Churchill sent home from eight to thirteen tons of oil that had been tried out in large open kettles on the beach.

The Hudson's Bay Company was alone in the field until comparatively recent years. In 1714 the French, who were moving in on the fur trade in the territory, announced their intention of founding a settlement at Churchill to exploit the white whale fishery, but nothing came of this. There is no evidence that when the French did occupy Churchill in 1782, after sacking Fort Prince of Wales, they did anything about the beluga.

The presence of white whales every summer in the Churchill area was observed and mentioned by nearly all the early visitors to the mouth of the river. On 17 July, 1717, Captain James Knight, Governor-in-Chief in Hudson Bay, looking for a site on Churchill River to establish a post, was having trouble feeding his crew and tried to catch fish to replenish the larder. He wrote in his diary: "I sett six netts in the water but find here is not much fish as yett, Although here is a pretty many white Whales off in the channell." There is nothing to indicate that he caught any of them.

There are, indeed, few records of beluga catches during the 18th and 19th centuries beyond the occasional efforts of the Hudson's Bay Company. Charles R. Tuttle, author of *Our Northland*, visited Churchill in 1884. He wrote then that exports of the products of the oil-bearing animals of the waters of Hudson Bay amounted to over $150,000 a year. However, the animals he referred to included the walrus and larger mammals like the Greenland whale.

On the river bank at Churchill, Tuttle noted, there was a large oil refinery. "This building contains large cast iron tanks, and is otherwise equipped for reducing blubber on a large scale". Apparently a Mr John R. Spencer, junior chief trader for the Hudson's Bay Company at Churchill, was developing a large white whale fishery, on the shores of the harbour. Tuttle noted that in 1883, using nets and traps, Spencer had taken 190 of these "mammals of immense size".

The Company hunters at this time used an ingenious method of taking beluga. A huge net was securely anchored on the river bed, so placed that when the tide was in it lay on the bottom and the beluga entering the river swam over it without hindrance. Just before the tide turned, the hunters raised one end of the net, and as the water spilled out of the river and the beluga went with it, they were trapped. Some were caught in the net to drown; others, as the tide reached its farthest ebb, were left high and dry on the mud, easy prey for riflemen.

Beluga have been studied in many parts of the world and there are several theories about them which remain to be proved. One is that they have a keen sense of smell —Norwegian hunters are not allowed to smoke anywhere near a pod because the scent of smoke seems to drive them away. For the same reason Russian hunters in Siberia do not build fires on shore when they are after beluga.

The name was derived from the Russian word *belukha*, which means white in colour. In the Gulf of St Lawrence the white whale is known as *marsouin blanc* and the Eskimos call it *kellilughak*. It is also known to those who have heard it as the "sea canary" because of the plaintive sound it makes, even though it has no vocal cords. This sound has been compared to a thin whistle, a sigh and a grunt, and it can add an eerie quality to the night when emitted by a whole herd. When the sea canaries are singing in unison the noise can be mistaken for the faint putt-putt of a distant fleet of motor boats. Sometimes it is a grinding sound, and it has been likened to the noise made by someone shaking a large tin platter.

Vapour laden air, blown out at high pressure, forms the small spout by which hunters sometimes locate their quarry. The beluga's spout, however, cannot be seen from any distance, and the men usually find their quarry simply by looking for a white shape in the water. ◆

CANADIAN AMBER

BY J. F. McALPINE AND J. E. H. MARTIN

The authors are on the staff of the Entomology Research Institute of the Department of Agriculture Research Branch. Their detailed and fully documented report on amber appears in "The Canadian Entomologist", Vol. 6, No. 6, 1969. The illustrations, except one, are by members of the Agriculture Department staff.

How insect-bearing amber was formed: a parasitic wasp and a fly trapped in sticky resin, first step towards entombment and eventual fossilization.

A PALEONTOLOGICAL TREASURE CHEST

CANADIAN AMBER is both a treasure-chest and a showcase of life on earth tens of millions of years ago. Entombed in the gem-like nodules are some of the world's best preserved and most fascinating fossils of insects, spiders, mites, and related animals as well as pollen grains, spores, and fragments of plants that lived when the amber was produced. These forms inhabited what is now North America toward the close of the Mesozoic Era in the Upper Cretaceous Period some 70,000,000 years ago. At that time flowering plants were becoming abundant, dinosaurs were still dominant but declining, and primitive mammals were just beginning to appear. This was a period of profound importance in the evolu-

An artist's conception of life and conditions in the Great Plains Region during the latter part of the Cretaceous Period when Canadian amber was being produced. From a mural by Rudolph F. Zalinger in the Peabody Museum, Yale University.

tion of many present day plant and animal groups, but precise data on them, especially on the insects of those days, is extremely meagre. For this reason the fossil specimens in Canadian amber are extremely informative to biologists.

Amber inclusions, as they are called, are extraordinarily well preserved, and since the amber is translucent, even microscopic details of the specimens in it can be clearly seen. They tell us not only the kinds and natures of things that lived during Cretaceous times, but they provide positive evidence about the development and dispersal of the groups they represent. Such information is basic to a proper understanding of the evolution, biogeography and classification of present day forms; in addition, it permits us to draw conclusions about the climatic and ecological characteristics of the area in which they lived.

It is regrettable that even though Canadian amber has been known for over a century very little of it has been actually collected. One reason for this is because it is unsuitable for jewellery making. Another is because its scientific value has not been fully realized. One of the prime purposes of this article is to alert people to its occurrence and its biological significance.

Amber is resin that oozed from injuries in prehistoric trees. When fresh it was soft and sticky, and it served as a kind of tanglefoot, much as fresh pine gum does today. Insects, spiders, and mites that flew or crawled onto it were trapped, and in some cases, they became completely embedded in it by subsequent flows of resin. Similarly pollen grains, spores, and other matter blown into it by the wind, became preserved within it. Sooner or later all these hardened blobs of gum fell to the ground and became covered with organic matter and soil. Today in undisturbed geological strata they are usually associated with coal and lignite deposits.

The name amber is applied to various kinds of fossil resins. Because they differ in their physical and chemical properties, depending upon their sources and ages, they are given different technical names. At least thirty-nine named varieties of amber, comprising two main groups, are recognized. Those containing succinic acid make up the succinite group and those lacking it belong to the retinite group. Baltic amber from the shores of the Baltic Sea in Europe is a succinite; reddish amber from Sicily, called simetite, is also a succinite. But amber from Burma, called burmite, belongs to the retinite group, and

bacalite from Baha California is also a retinite. Canadian amber from Cedar Lake, Manitoba, is a member of the retinite group; it was named chemawinite after the Indian name for the Hudson's Bay Post near the amber deposits.

In physical appearance, pieces of Canadian amber resemble small lumps of barley candy or bits of broken brown glass. Its specific gravity is only slightly greater than water, and because of this it is carried along by running water much as thistle-down floats in air; the slightest current transports it with little or no abrasion. Consequently, the nodules are often washed from their original positions and become secondarily deposited with organic debris of similar weight and buoyancy along shores of rivers, lakes and seas. These nodules are impervious to decay, but they fracture and crumble into smaller pieces when left exposed to the elements. Nevertheless, many pieces still retain their original tear-drop and stalactite-like shapes. They ignite in an open flame almost as readily as fresh pine gum and emit odours similar to resins of present day conifers. It is doubtful if there is any other natural product that is as chemically stable as Canadian amber under the conditions that have been imposed on it; almost certainly no other matter produced by living things has existed for so long with so little change.

European or Baltic amber, which is about half as old as Canadian amber, is perhaps the world's most favoured amber. Because it and Canadian amber are so mutually complementary from paleontological and biological standpoints, it is desirable to review here some highlights concerning it. Its name is derived from the fact that it is abundant along the shores of the Baltic Sea, especially in the vicinity of the Samland Promontory in East Prussia. It has been known since earliest historic times and a great deal has been written about it. It has been commercially exploited for centuries by beach collecting, dredging and mining operations, and about 99.5 per cent of all the amber collected by man is Baltic amber. In the past most of this was used to make varnish, but a large portion was and is being used for making jewellery and such like.

Baltic amber is largely the product of an extinct pine, *Pinites succinifera* Goeppert, which flourished during Early Tertiary times, some 40 to 50 million years ago, on a northern land mass that reached southward to the vicinity of the amber coast. This land became inundated in late Eocene or early Oligocene times and the resin left behind by the forests that grew there was washed out by the sea and by ancient rivers. Today it is associated with a layer of "blue clay" from which it is continually being washed out again and cast ashore by wave action.

Nearly a quarter of a million entombed insects have been found in Baltic amber. Many of these fossils have already been described, but the work of describing them and relating them to present life still continues.

The main collection of these fossil-bearing nodules, the amber collection at Albertus Universitat, Königsberg (Kaliningrad), containing at least 70,000 insects was believed to have been burned during World War II but, in fact, it was kept safely in the Geological-Paleontological Institute of the University of Goettingen, Germany, where it still remains. Other large collections of similar material are at the Paleontological Museum of Humboldt University, Berlin, at the Department of Paleontology,

J. E. H. MARTIN

A sample of Cedar Lake amber picked by the authors in 1963. About one piece in 50 contained an entombed insect.

O. HANBRIGHT

Gem-like nodules of Canadian amber from Cedar Lake, Manitoba. These hardened drops of resin oozed from living conifers over 70 million years ago. Note the original drop-like shapes still apparent in some of the pieces, and the fragments of bark, etc., entombed in others.

British Museum (Natural History), London, and at the University of Copenhagen, Denmark. In addition, there are many smaller collections of Baltic amber in other institutions in Europe and America. Much of the material containing Diptera has been brought together for study by Professor Dr W. Hennig at the Staatlichen Museum für Naturkunde in Stuttgart, Germany. Professor Hennig has already produced an excellent series of papers on the flies (Diptera) in Baltic amber, a group that is especially important because 50 to 60 per cent of all the insects in Baltic amber are true flies.

Amber from Cedar Lake, Manitoba, is by far the richest and biologically the most important Canadian amber known, but it is important to note that it also occurs at many other places in Canada and Alaska (see map). Most of the reports of its occurrence consist of incidental, sketchy remarks in articles on other subjects, usually of a geological nature. Except for the unusual deposit at Cedar Lake and finds made in the vicinity of Wainright, Alaska, the amber itself has attracted little or no attention, and little of it has been collected for study.

When undisturbed, most Canadian and Alaskan amber lies along bedding planes in coal or carbonaceous sediments. In practice, however, amber particles are most frequently found in secondary positions; sometimes it is concentrated on the surface of the ground at, or immediately downslope from coal outcrops. Tailings from open pit coal mines in Alberta frequently contain fragments. Concentrations or "swarms" of amber nodules up to four inches thick and several feet wide occur in the coal seams along the Gilman River, near Lake Hazen, Ellesmere Island. In most cases, however, it is much more scattered, and must be laboriously picked up one piece at a time.

Most of the finds of amber in British Columbia are associated with Tertiary coal beds. As stated, those of the Central Plains Region are associated with Upper Cretaceous deposits. Those from the Kuk River in Alaskan Arctic Coastal Plain are considered Early Cretaceous in age. The deposits near Lake Hazen in Northern Ellesmere Island appear to be Early Tertiary, in the range Paleocene to Oligocene. Fossil resins from the Gaspé Basin are associated with bituminous sandstone beds of Devonian sediments.

It is not really known what kinds of conifers produced Canadian amber. The Early Cretaceous material from Alaska is believed to be from cypress-like trees rather than from pines; possibly this is also true for the late Cretaceous amber found in the Great Plains, but we do not know. Amber from Ellesmere Island is very different from the material from Cedar Lake and Alberta, and almost certainly it was produced by different conifers from those that produced the more southern material.

Occurrences of Canadian amber (black dots) in relation to interior seas and floodplains that existed when it was being produced. In early Upper Cretaceous times (Turonian Stage, about 90 million years ago) a broad sea extended from the Arctic coast to the Gulf of Mexico. To the east lay the stable Canadian Shield. To the west was a vast, unstable, mountainous region which was undergoing regional elevation. As the mountains rose they were eroded and great quantities of sediments were carried down rivers and streams, forming extensive floodplains and deltas along the western border of the interior sea. These marginal plains were repeatedly flooded and reformed in successive geological ages. In late Santonian—early Campanian times (about 80 million years ago) the Aquilan floodplain (A) reached its maximum extent; its outer edge extended far to the east of the older Turonian shore. About four million years later in the Campanian age, the Aquilan floodplain was, in turn, partially overlain by Belly River—Judithian deposits (Foremost and Oldman Formations) and the floodplains involved (B-J) extended even farther eastward into the interior sea. Still later, in Upper Maestrichtian times (about 68 million years ago) the huge Edmontonian delta (E) was formed in central Alberta. By the end of the Cretaceous Period sediments filled the central basin and the sea withdrew to the north and south. Amber, like coal, came from vegetation in the swamps that existed along these ancient shorelines; consequently, most occurrences of Canadian amber coincide with coal deposits that bordered such shores.

PHOTOS S. KLOSKVITCH

A Sciadocerid Fly (Diptera, Sciadoceridae) in Canadian amber. Only two living species of this group exist today, one in southern Chile, the other in southeastern Australia and New Zealand. The larvae of the Australian species breed in carrion.

A Tiny Biting Midge or No-see-um (Diptera, Chironomidae) in Cedar Lake amber. This species may have sucked blood from primitive animals just as many of its relatives do today. The larvae probably lived in muddy, seepage areas.

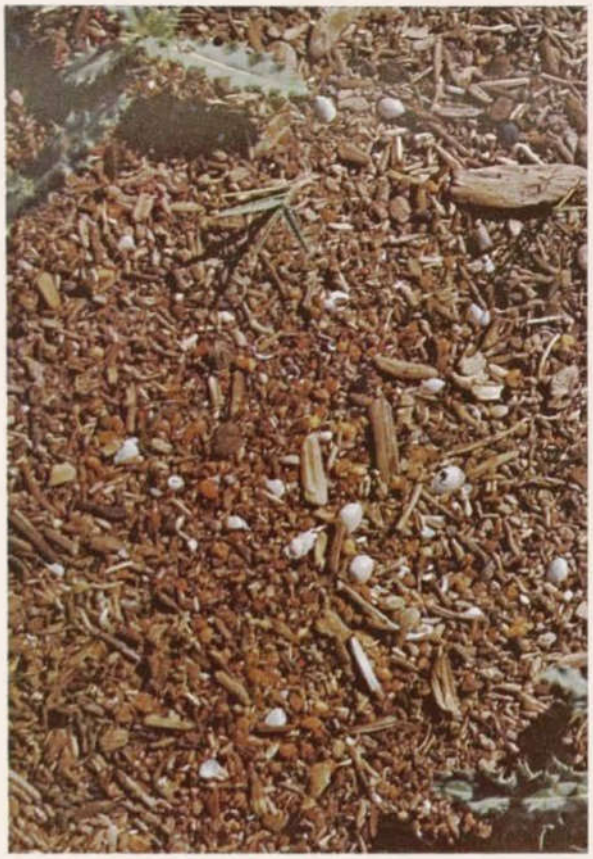
The famous Cedar Lake amber site was revealed in 1889 by Indians to Mr William Cornwallis "Trader" King, an officer in charge of the nearby Hudson's Bay Company trading post at Chemahawin. This deposit was first studied in 1890 by Dr J. B. Tyrrell of the Geological Survey of Canada during survey operations in what is now northern Manitoba, but the first published report on it was made by Dr J. B. Harrington.

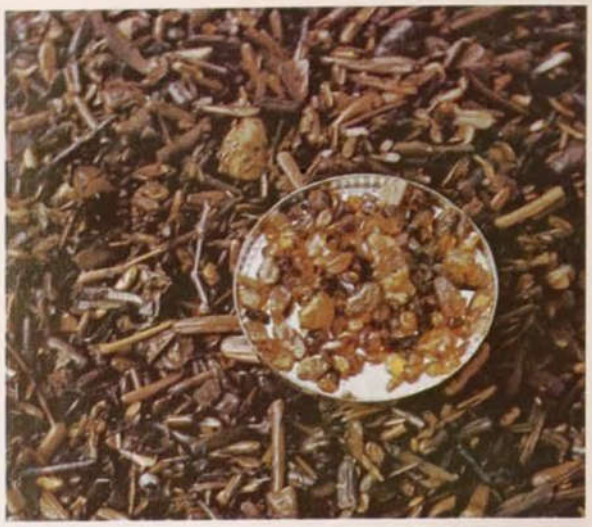
Because of the economic potentialities of amber in the chemical and jewellery trade—both of which were thriving in Prussia at the time of the amber discovery at Cedar Lake—the Canadian find was given considerable attention. In 1891 Dr O. J. Klotz, of the Geological Survey of Canada was commissioned to carry out a thorough survey of the Cedar Lake area for other deposits. He found traces at several places along the Saskatchewan River near Cedar Lake but nowhere was it so abundant as at Cedar Lake itself.

In spite of Klotz's pessimistic report about the extent and usefulness of the Cedar Lake deposit, various attempts were made to exploit it commercially. Letters in the Archives of the Hudson's Bay Company (copies provided by the Governor and Committee of Hudson's Bay Company) show that, in all, something less than a ton of amber was obtained from there between 1895 and 1937. The greater part of this (approximately 1,000 lb.) was privately collected by Mr King, but efforts to trace his material have been fruitless.

The latest attempt to exploit the deposit commercially was made in the mid 1950s by a company called Native Minerals Limited; they scooped up large quantities of the amber-bearing shore-debris during winter and shipped it to Winnipeg for sorting. Evidently it was not a profitable venture, but recently, about one pound of very small particles (about the size of No. 4 shot) obtained from this debris was given to the Canadian National Collection of Insects by Mr M. C. McLeod of Native Minerals, Calgary, Alberta.

From the outset geologists believed that these amber fragments were secondarily deposited at Cedar Lake; its original source has always been thought to be the Cretaceous formations upstream and there is good





PHOTOS J. E. H. MARTIN

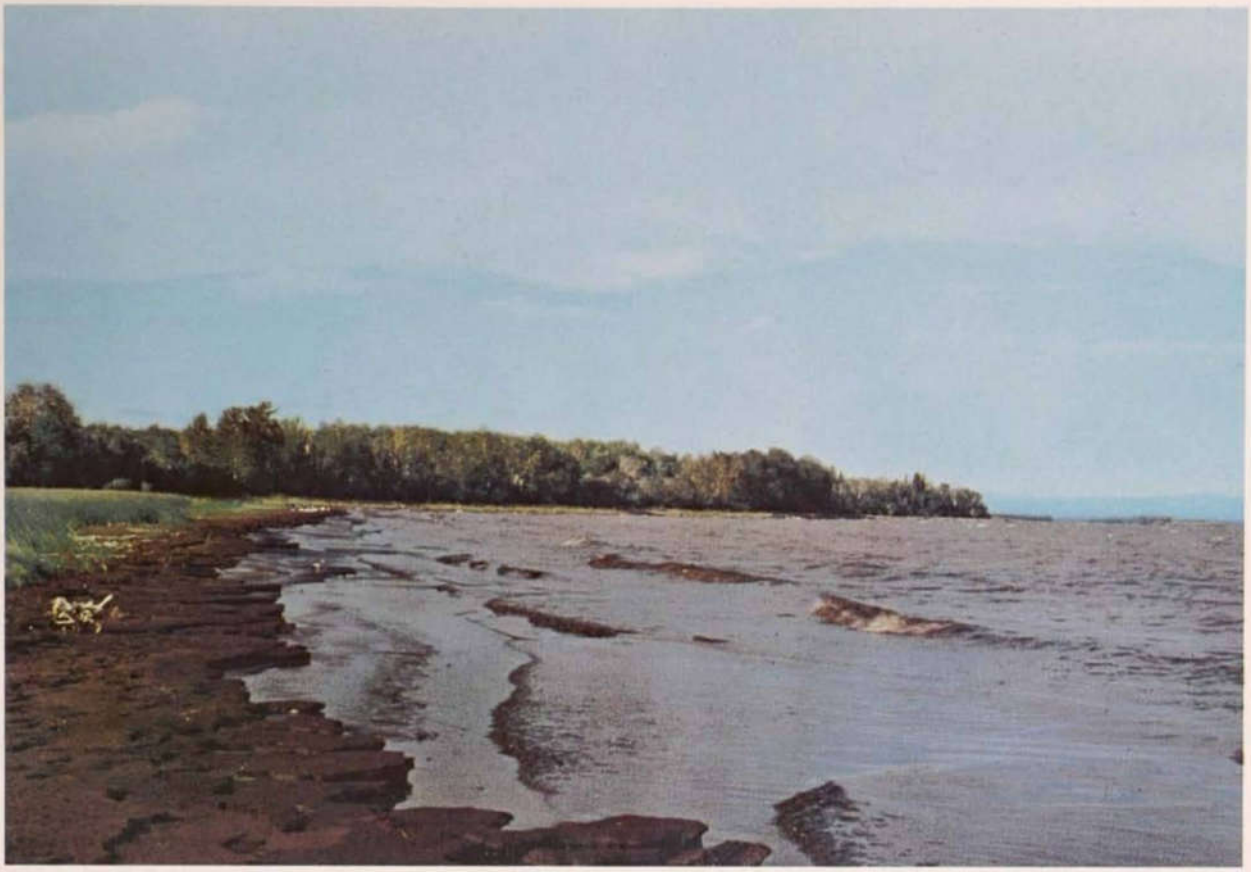
Amber nodules as they appeared among organic debris on the amber beach at Cedar Lake (left), and nodules recovered from submerged detritus, in August 1963.

The amber beach, Cedar Lake, Manitoba, as it appeared in August 1963. The mouth of the Saskatchewan River and the former Hudson's Bay Post, Chemahawin, are located at the extreme right. Amber particles brought down by the river were washed ashore in this bay. A recently completed dam at Grand Rapids has since flooded the entire area shown.

evidence to support this belief. Harrington, on the basis of chemical analyses, found that amber "from Tertiary or Cretaceous lignites occurring in the Saskatchewan River was not essentially different from the Cedar Lake material." Samples we have examined from Cretaceous deposits near Medicine Hat, Alberta, and from dredgings in the Saskatchewan River near Saskatoon also appear similar in all respects to the material from Cedar Lake. Many of the amber deposits in the Great Plains, especially in Alberta, occur along tributaries of the Saskatchewan River and its occurrence today in different places along the main course of the Saskatchewan River seems to confirm that it is being washed there from upstream. The semipolished condition of the Cedar Lake amber clearly shows that it has been subjected to a great deal of "tumbling". In all probability the Saskatchewan River system washed the Cedar Lake amber out of coal deposits at various places along its course and simply funnelled the most durable pieces into Cedar Lake, the first sizeable settling basin in its course. Once there, the pieces were washed up on the shore by wave action.

Rather definite confirmation that this amber really is Cretaceous in age was made on material collected by Mr P. Boston in an open pit coal mine in Southern Alberta. The coal deposits there are overlaid by volcanic ash determined as 72-73 million years old by radiometric dating processes. This established the minimum age of the nodules at 73-74 million years, which means that the fossil species in them existed before the close of the Campanian Epoch of the Upper Cretaceous Period.

The paleontological significance of Cedar Lake amber first became evident in 1934 with the publication of a paper on mineralogy by Dr T. L. Walker. He observed that some pieces contained insects and published photographs of a few of them. This report immediately interested Dr F. M. Carpenter, internationally known insect paleontologist at Harvard University; he borrowed the material from the Royal Ontario Museum and, in collaboration with other experts, published in 1937 the one and only comprehensive report on the insects and related forms in it. In 1938 he organized an expedition to Cedar Lake, and in three months he and four others

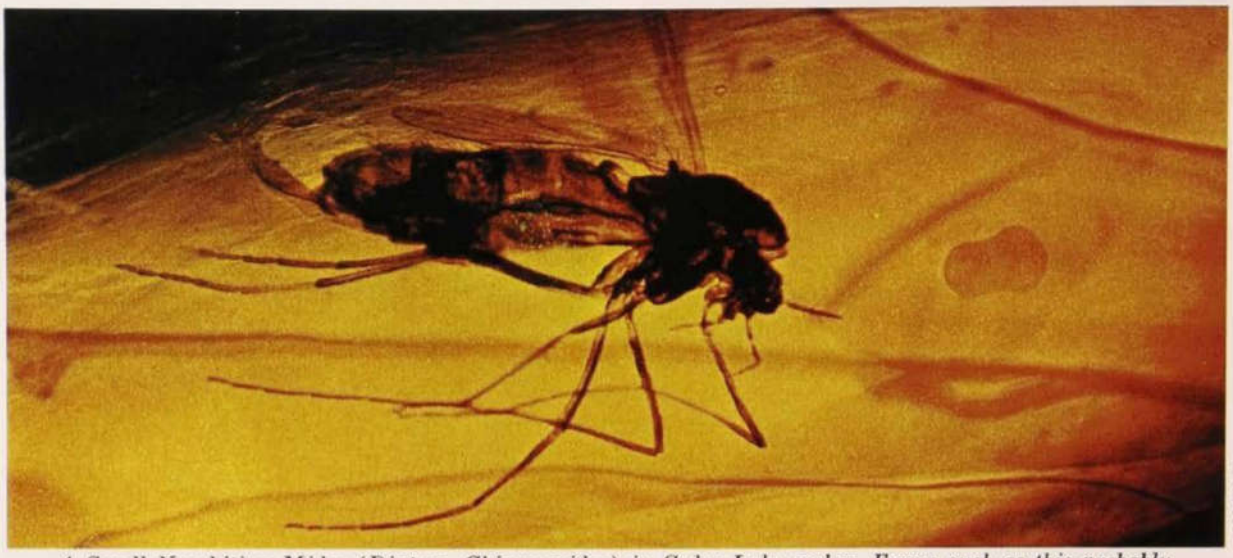


obtained about 400 pounds of amber for the Museum of Comparative Zoology, Harvard University. This material has since been examined for inclusions and many specimens are now available for loan to specialists for study and description. A second collection from the same site was made in 1940 by Mr W. C. Legg, then a student at Princeton University; his collection, containing over 200 zoological specimens, is also deposited at the Museum of Comparative Zoology.

Two attempts were made to obtain amber from Cedar Lake for the Canadian National Collection of Insects. The first was made in 1950 by Mr W. J. Brown and Dr R. D. Bird. They collected about 2.5 pounds of nodules from the size of a pea to that of a robin's egg. A second attempt was made by ourselves in 1963 with similar results.

The low shelving shore opposite the mouth of the Saskatchewan River which forms the amber site has been described many times. Here the amber is mingled with shells, coal fragments, sand and organic debris resembling a mixture of finely chopped ensilage or sawdust. By working twelve to fifteen hours a day for three days we obtained a quantity, similar in size and quality to that of Brown and Bird. These may well be the last samples to be obtained from this site, for since then a hydro dam at Grand Rapids at the foot of Cedar Lake has raised the water level in the lake causing the amber shore and surrounding area to be completely inundated.

Now let us turn our attention to the "treasures" in Canadian amber. At first glance it would seem that insects and related forms are very rare, but this is a rather false impression created largely by the tediousness of obtaining the amber in the first place and of finding the inclusions in it afterwards. Out of 45 ounces (about 7,650 pieces) of Cedar Lake amber examined so far, we have found 150 pieces containing insects. Thus, about one out of 50 to 55 pieces of the material collected by Bird and Brown in 1950 and the material we collected in 1963 contains one or more entombed animals. The collection made by Legg in 1940 is described as small, but it contained over 200 zoological specimens. Carpenter and his colleagues were evidently less selective in picking their



O. HANRIGIT

A Small Non-biting Midge (Diptera, Chironomidae) in Cedar Lake amber. Forms such as this probably swarmed in openings along streams and lakes in the Cretaceous forests. The larvae lived in fresh water.

amber particles, but even so, one piece in one thousand contains something interesting. Actually, then, Cedar Lake amber, especially the pieces that are pea-size or larger, are unusually rich in fossils.

Amber fragments from near Medicine Hat, Alberta, collected by Mr P. Boston, appear to be at least equally rich in fossils. The only other amber from north of the Canada-United States boundary examined for insect fossils is that from the vicinity of Wainright in the Alaska Coastal Plain, and a small amount from the shores of Lake Hazen, Ellesmere Island. Out of two cubic feet of loosely packed pieces from Alaska, only three pieces contained insects. We have examined perhaps 1,000 pieces of the Lake Hazen material without finding any zoological specimens. Although we expect eventually to find some insects in it, it certainly is not as rich as the Cedar Lake samples.

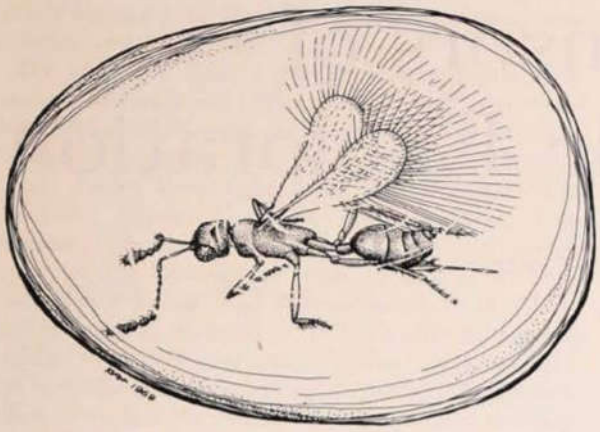
To obtain some idea of the total number of known pieces of Canadian amber that contain insects, and to summarize what they are, we extracted all the data we could from published works and added the new information obtained from our own studies. Exclusive of most of the large collection (400 lb.) of amber made by Carpenter in 1938, there are about 470 pieces of amber known which contain identifiable animals. All but eleven of these came from Cedar Lake. Among them there are some 300 different species; of these, only 30 have been described.

The important task of describing the undescribed species and of relating them to existing species is best done by experts on the groups concerned. Most of the species fit readily into present orders, but many belong to families for which new classifications are required. All of them are of different genera and species than are their modern day relatives.

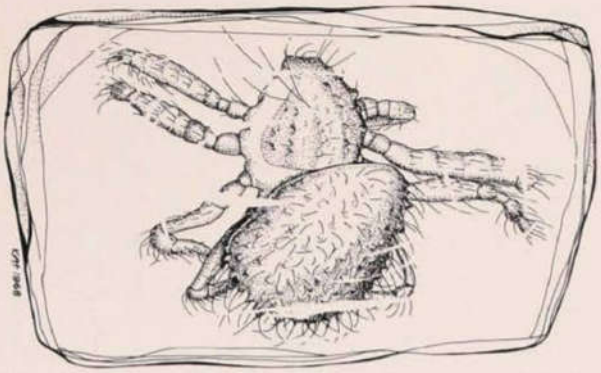
By comparison, practically all the species in Baltic amber are readily placed in present-day families, and subfamilies; many are assignable to modern genera and some of the species are very similar to, if not identical with, living species.

Too little is known about too few of the insects in Canadian amber to draw conclusions about their palaeoecology and environment, but certain indications seem to be worth pointing out. First, the fact that none of the species and very few, if any, of the genera occurring in Cretaceous amber occur either in Baltic amber or any place in the world today, may indicate that these lines suffered extinction either in late Cretaceous or early Tertiary times. Secondly, there is reason to believe that some of the species found in Canadian amber, such as aphids, were directly associated with coniferous trees. Others such as the pirate bug and the fairy-fly may well have been natural enemies of these aphids. It is interesting to note that 40 per cent of the inclusions in Canadian amber are Diptera (50 per cent in Baltic amber) suggesting the prevalence of rich, moist conditions. All things considered, the insect fauna so far known suggests that the climate and ecological conditions may have been rather similar to present conditions in Florida. However, some of the species represented in Canadian amber appear to be more closely allied to existing species now occurring in Australia, New Zealand, and South Africa, than to anything else.

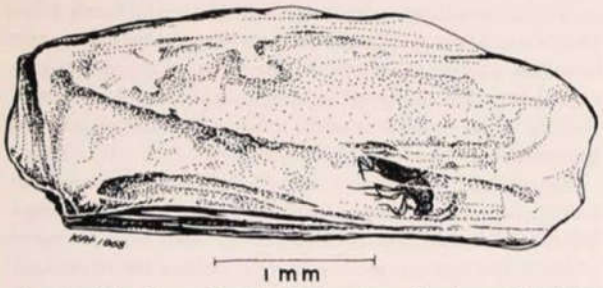
Such well preserved fossils from the Cretaceous period enable us to understand more clearly the origin, development, dispersal and classification of many existing forms, and certainly much greater efforts should be made to acquire the raw material. Every nodule with an inclusion is a virtual treasure-chest of information about life in prehistoric times. ◆



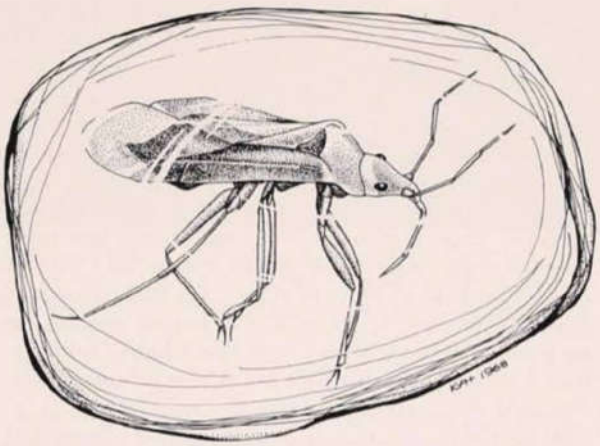
A tiny Fairyfly (Hymenoptera: Mymaridae) in a piece of Cedar Lake amber. Present day members of this group are among the smallest insects known; they parasitize the eggs of other insects.



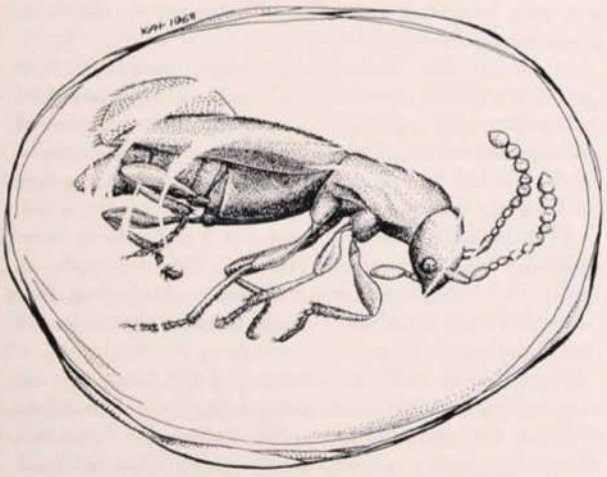
An Orb-weaving Spider (Araneida, Araneidae) in Cedar Lake amber. In Cretaceous times this species probably made gossamer snares to capture insects for food.



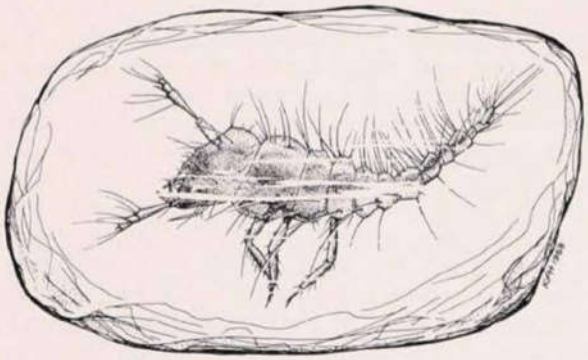
An Antlike Stone Beetle (Coleoptera: Scydmaenidae) in a piece of Cedar Lake amber. Actual length of the specimen is about 0.7 mm. Most insects found in this amber are very small.



A minute Pirate Bug (Hemiptera: Anthocoridae) entombed in Cedar Lake amber. Living members of this family feed upon tiny insects and insect eggs. This fossil species was probably a predator of aphids infesting the amber-producing conifer.



A larger view of the beetle in the nodule above, showing minute details of its legs, antennae and other body-parts. Modern members of this group live under stones and logs and in ant nests, but sometimes fly about in large numbers at twilight.



A larva of an ancient Rove Beetle (Coleoptera: Staphylinoidea) in Cedar Lake amber. Note the long, sharp mandibles that cross in front of the head. This species probably preyed upon other insects as do many of its modern relatives.

DRAWINGS BY K. A. HAMILTON

The Sponsors of Canadian Arctic Exploration

BY JOHN E. CASWELL

PART II - 1668 to 1789

THE HUDSON'S BAY COMPANY ERA

Although Sebastian Cabot probably entered Hudson Bay in 1508-9, systematic exploration of the Canadian Arctic began in the midst of the Elizabethan struggle against Spain. The sponsors of northwestern expeditions hoped to find a means of striking the Spanish colonies in the rear, a better route to the Indies, or a method of supporting North American colonization.

By the reign of James I, Spain was no longer a major threat to English security. When exploration was again taken up, the principal objective was to find a short route from English ports to China, the Philippines, the Spice Islands and India herself. The leaders were for the most part already venturers in the East India Company, founded in 1600. During the Civil War and Protectorate, Canadian Arctic exploration lapsed.

After the Restoration, a new generation of courtiers was intent on recouping its own fortunes, while seeking to extend English commerce and to restore the finances of the government. Thus a ready ear was lent to two discontented French fur traders, Médard Chouart, Sieur des Groseilliers, and Pierre Esprit Radisson, when they appeared in London in 1665. Their proposal to develop a fur trade west of Hudson Bay in an area not yet exploited by the French received a ready hearing. The highest court circles, London merchants, and members of the young Royal Society were all involved. Indeed, Robert Boyle, secretary of the Society, probably arranged for the introduction at Court of Groseilliers and Radisson. The Frenchmen received the patronage of James, Duke of York, brother and heir of the King, and of Prince Rupert, the King's cousin. Says E. E. Rich, historian of the Hudson's Bay Company, "If the Frenchmen's story did not appeal to these men, then it would appeal to nobody in England, for the group had experience and judgement, and a vision of the integration of the parts of an empire into a whole."

Grateful acknowledgement is made to the Governor and Committee of the Hudson's Bay Company for permission to consult and quote from their archives.

The six active sponsors of the expedition which led to the founding of the Hudson's Bay Company were associated in a variety of colonial enterprises. The leader was Anthony Ashley Cooper, the future Earl of Shaftesbury; Sir George Carteret, who took personal charge of the two Frenchmen; Sir Peter Colleton; General Monk, now Duke of Albemarle; Lord Arlington; and Lord John Berkeley. Five of these men had just undertaken the founding of the Province of Carolina on the American coast, and later were to be given a charter to develop various West Indian islands, while Carteret was made proprietor of New Jersey by Charles II.

Taking up Groseillier's and Radisson's proposal, the group planned for a voyage to Hudson Bay in 1667 and bought a vessel. As the first vessel was found unseaworthy, the voyage was cancelled. Before an expedition finally got under way in 1668, a number of merchants and officials became involved, including John Fenn, Paymaster of the Admiralty, who advanced cash; John Portman, who represented the banking community; and James Hayes, private secretary to Prince Rupert. No one man advanced more than £200, and the courtiers provided more prestige than capital.

In the ketch *Nonsuch*, Groseilliers and Captain Zachariah Gillam wintered on the East Main coast of James Bay and returned to England with a cargo of prime beaver skins. Although some had expected that a search would be made for the Northwest Passage, nothing of the sort seems to have been attempted.

The sponsors whose leaders are listed above were officially chartered as the Hudson's Bay Company in 1670. The forts the Company built on Hudson Bay represent the first step in the European occupation of the Canadian Arctic.

From 1670 to 1682 the Governor of the Company was the dashing Prince Rupert, and meetings were sometimes held at his apartments in the Palace at Whitehall. He was succeeded as Governor by James, Duke of York. In 1685 the Right Honourable John, Lord Churchill, future Duke of Marlborough, became Governor, serving until 1692. Sir William Trumbull, in his youth a travelling companion of Christopher Wren and Samuel Pepys, and

later a Secretary of State and Privy Councillor, was governor from 1696 to 1700.

The Hudson's Bay Company undertook its first northern exploration in 1686, under Churchill's governorship. Michael Grimington and a crew of five left Port Nelson in a sloop to explore the mouth of the Churchill River, staying there eight days. Two years later the Governor, Deputy Governor, and Committee (the customary phrase for the governing body) in London instructed the Governor in Hudson's Bay to send the "Boy Henry Kelsey" and Thomas Savage to the Churchill River to establish a post. In 1689, while Savage was building the fort, Kelsey and an Indian companion went out to publicize the post among the Indians. In this first effort to explore the interior, they penetrated the back country approximately 140 miles.

Whether their nations were at peace or war, the French considered Hudson's Bay posts fair prey. The last one in French hands, York Fort on the Nelson River, was restored only after the Treaty of Utrecht was signed in 1713. Reconstruction, rather than extension, was the first order of business. And by 1718, when Arctic exploration was again taken up, the courtly speculators were replaced by more staid merchants and lawyers of the City of London. Although the King's Most Excellent Majesty headed the list of adventurers with £900 invested, the Lake family held six times that amount (£5,784). Sir Bibye Lake, baronet, barrister, and Deputy Governor of the Royal African Company, was Governor of the Hudson's Bay Company in the years 1712-1743. The Pitt family, Samuel Senior, Benjamin, and Samuel Junior, held the next largest block of stock (£4,200).

While the Committee displayed an understandable reluctance to spend money on speculative expeditions, James Knight, recently Governor in Hudson Bay, persuaded them to do so. Thus momentarily, Knight became the key figure in exploration.

Knight had entered the Company's service as a carpenter, had risen to be Chief Factor, and become the first man with experience in Hudson Bay to serve on the Committee in London. In 1714 he was sent out again as Governor-in-chief in Hudson Bay to carry on the task of reconstruction.

Later that year an Indian captive from the north, known as the "Slave Woman," was brought to Knight's post. She described a river or strait in her country through which the tide ebbed and flowed. This suggested to Knight that it was possibly the Northwest Passage. Two years later a party from the same region brought tales of copper to be found in the north, while Knight also learned of a "gum or pitch" that flowed down a river—the first reference to the Athabasca oil sands.

From the confusing reports of metal finds, of rivers flowing into a sea, and of bearded white men gathering gold, Knight drew up his picture of a fortune awaiting the Hudson's Bay Company, perhaps in California, at the western end of the long-sought Northwest Passage.

NATIONAL PORTRAIT GALLERY

Anthony Ashley Cooper (later Earl of Shaftesbury) one of the proprietors of the Carolina colony, contributed to the preliminary expedition which resulted in the charter of the Hudson's Bay Company.

In late 1718 Knight reached London with a plan which he laid before the Hudson's Bay Company. Although probably past sixty years of age at the time, he proposed to lead an expedition in search of the Passage and the rumoured mines. A subcommittee was set up on 20 March to negotiate with Knight. The contract drawn up directed Knight to explore the west coast of Hudson Bay north of 64°, an area which the Company's trading sloops did not reach. Knight received a salary and took a one-eighth interest in the cargo of the two vessels assigned him. Bricks and mortar were taken along for a house, and a second vessel given him as a companion. Knight sailed away and disappeared.

In 1719, the year of Knight's disastrous voyage, his successor as Governor in the Bay, Henry Kelsey, at the orders of the Committee is London, took two vessels exploring north of the new post at Churchill. To make the post self-sustaining, more trade was needed, and Kelsey had hopes of finding the elusive copper mine, of developing the whale fishery, and of opening trade with the Eskimos. Kelsey sent the vessels back north in 1720; in 1721 he again went in person; and in 1722 he sent a new sloop, commanded by John Scroggs.

Scroggs reported that he had explored Roes Welcome, although he probably was in Daly Bay. A piece of mast

found at Marble Island led to Scroggs's discovery of other relics of Knight's expedition. Eskimos told Scroggs, so he stated, that Eskimos had murdered the few members of Knight's crew who had survived the winter. For over thirty years after Scroggs's return to Churchill, the Company sent out no other northern expeditions.

The Honourable Company found no need to expand the area of its operations and could see little profit from the explorations it had thus far conducted. However Arthur Dobbs, a wealthy landowner of northern Ireland, believed the Company should undertake exploration for the general benefit of English commerce. He became a gadfly to the Company and the Admiralty alike. Three expeditions owe their origin to Dobbs's initiative.

Dobbs had become interested in developing British commerce and colonies. While studying expedition journals, he became convinced that the Northwest Passage was all but discovered. In 1731 he completed a 70-page manuscript in which he reasoned that the Passage was to be found along the shore of Roes Welcome. His evidence was historical, physical, and zoological. He argued that very high tides in the Welcome and early ice breakups were evidence of a short Northwest Passage near at hand. Whales abounded in Roes Welcome, which he could find no one having reported in Hudson Strait. Reasoning from such information, Dobbs concluded that voyages could be made to California in

John Churchill (after his military successes first Duke of Marlborough) was the third Governor of the Hudson's Bay Company.

three or four months, and trade could be developed not only with the Spanish colonies, but with the gold-bearing Solomon Islands and other lands in the South Sea. In time of war, ships could be sent secretly to intercept the Manila galleon and disrupt commerce of Spanish America. Colonies could be established, the doors of Japan forced open, and the woollen trade extended "near California and America." In Dobbs we hear the echo of the Elizabethan age.

On Dobbs's visit to London in 1731, he broached his scheme to Colonel Martin Bladen, a Lord Commissioner of the Board of Trade and Plantations. Later he put his project before Sir Charles Wager, First Lord of the Admiralty. During a visit in 1733 he interviewed Samuel Jones, the Deputy Governor of the Hudson's Bay Company, who pointed out the cost and failure of the Knight expedition of 1719.

Two years later, Dobbs was permitted to inspect the Board of Trade's copy of the Hudson's Bay Company charter, a document the Company itself would not reveal. Dobbs realized that under the charter any benefits reaped from discovery of the Northwest Passage would accrue to the Hudson's Bay Company alone, rather than to British trade in general, as he had hoped.

On the same visit, Dobbs interviewed Sir Bibye Lake, Governor of the Company. The Governor repeated what Jones had said regarding the Company's loss of £7,000 to £8,000 on the Knight expedition. Lake admitted that Dobbs's proposal to send out two small sloops for an

Sir George Carteret sponsored Groseilliers and Radisson when they were received by King Charles.

initial exploration was feasible. In some measure due to Dobbs's pressure the Hudson's Bay Committee set up a sub-committee to develop plans and instructions for an expedition of discovery.

In 1737 the Hudson's Bay Company sent Captain William Coats to investigate Roes Welcome and its vicinity, while a sloop was sent north from Churchill for trade and discovery. The next year the sloop was again sent north to trade in fulfilment of a promise made to the Eskimos, but thereafter voyages were discontinued north of Pistol Bay.

Dobbs had more than one string to his bow. His attention had been attracted in 1735 to Captain Christopher Middleton, one of the Company's senior ship's captains, through an article on magnetic variation in Hudson Bay which Middleton had published in the Royal Society's *Philosophical Transactions*. For several years Dobbs urged Middleton to leave the Company and seek the Northwest Passage. Middleton eventually quit the Company for other reasons and then agreed to lead a northwestern expedition if Dobbs could get the Admiralty to give him the rank of post captain and a sloop. Dobbs obtained two vessels for Middleton, but not the post rank. In 1741 Middleton sailed into the northwest corner of Hudson Bay. There he discovered and rather carefully investigated an inlet which he named the Wager River, in honour of the First Lord of the Admiralty.

Middleton, on returning home in 1742, became involved in a long and bitter controversy with Dobbs and some of his own crew members. Dobbs wanted desperately to believe that the Wager River was the long-sought strait and claimed that Middleton had not been sufficiently vigorous in his search.

Dobbs was not to be stopped by his own failure to stimulate the Hudson's Bay Company to a thorough search, or by Middleton's failure to find a Passage that was not there. In March 1744, Dobbs petitioned the Privy Council for the use of two ships for a new expedition. He was advised, instead, to apply to Parliament for the establishment of a reward for discovery of a Northwest Passage.

Dobbs published *An Account of the Countries adjoining to Hudson Bay*, in which he offered a plan for discovering a Northwest Passage, at the same time breaking the Hudson's Bay Company's monopoly and checkmating the French.

In 1745 Dobbs was ready with his petition to Parliament. Committee hearings were held, for which Dobbs served as stage manager. As a result, Parliament established a reward of £20,000 for discovery of the Northwest Passage. The Hudson's Bay Company managed to get in a saving clause that its rights and privileges were not to be prejudiced by anything in the bill.

An expedition was now set up by Dobbs as a single joint-stock venture. Shares were to be worth £100, and no person could hold more than ten. The subscription list included the Duke of Montagu; the politically powerful Earl of Chesterfield; George Berkeley, the Bishop of Cloyne; and a number of Irish peers, of whom several were, like Dobbs, Fellows of the Royal Society. From the City of London were thirty merchants, seven of whom, with Dobbs, managed the venture under the title of the North West Committee. The subscribers had the option of becoming members of a permanent trading company if the voyage were successful.

Two vessels were fitted out: the *Dobbs* galley (180 tons) under Captain William Moor and the *California* (140 tons) under Captain Francis Smith. The agent that accompanied the expedition on behalf of the Committee,

NATIONAL PORTRAIT GALLERY

General George Monk, Duke of Albemarle, who helped restore the monarchy, one of the group who sponsored the voyage to Hudson Bay in 1668.

Henry Ellis, also acted as chronicler, hydrographer, surveyor, and mineralogist, winning membership in the Royal Society for his scientific reports.

Instructions to the expedition did not differ materially from those given Middleton. The area in which to search for an entrance to the Passage was redefined as the region from "*Pistol-Bay* in 62° 30′ to *Wager-Strait*." The Eskimos were to be encouraged to trade, but trade was not to delay discovery, for the great prize was the Parliamentary reward of £20,000. Once an entrance to the Passage was found, the vessels should sail boldly through the strait and winter on the Pacific shore, planting such

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Arthur Dobbs who for many years tried to break the monopoly of the Hudson's Bay Company, in 1746 sent an expedition to seek the Northwest Passage.

fields, gardens and orchards as might be of use to the natives or Englishmen who might later come there. Hopes were high among geographers that at last the Passage would be discovered.

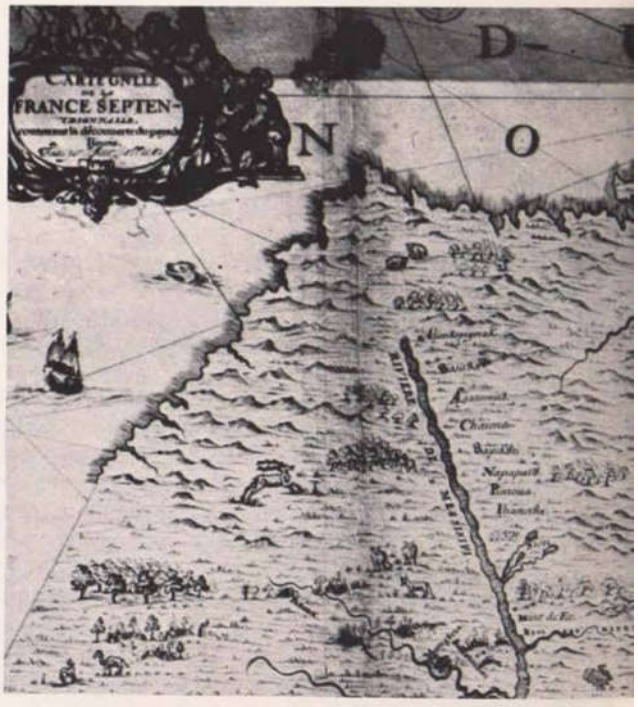
Dobbs's vessels passed through Hudson Strait and reached land to the west of Roes Welcome in 64° N latitude. When the ships were driven southward by contrary winds, several openings to the west were espied. As the season was now advanced, a council was called, which decided that the vessels should find a winter harbour on the Nelson River near York Fort.

The factor at York Fort, James Isham, had been instructed by the Company to co-operate with the expedition as little as possible. When the vessels were sighted off the Nelson River the channel markings were hastily removed. Captain Moor took this as a sign of hostility, while in fact with the ships' boats in the water, it was reported to Isham that four vessels were approaching, and Isham with reason feared it was a French squadron. During the winter Isham gave the minimum assistance required. In the expedition camp tensions became so great that Captain Smith fled to the Fort, leaving his wife behind.

On 1 July 1746, Captain Moor, Henry Ellis and eight seamen, in a decked longboat, began the survey of the coast. The *Dobbs* galley and *California* met the longboat on 13 July at Marble Island, then went north, where they surveyed the coast to 65° 5′ N, often working inshore with small boats. Left to the last was the task of entering Wager "Strait," where a careful search was made, but no opening to the west or north was found. The most careful survey made of this strategic stretch of coast had failed to disclose the Northwest Passage.

Still Dobbs was not silenced. In an effort to recoup costs and to break the Hudson's Bay Company's monopoly, the North West Committee appealed in January 1748 to the Privy Council for a charter covering a limited number of years, in which the subscribers "would have the same rights in all the land they discovered as the Hudson's Bay Company had in its settlements." When his request was rejected by the Privy Council, Dobbs laid the matter before the House of Commons. A special committee received 28 petitions and heard a number of witnesses, whose testimony indicated the Hudson's Bay Company's lack of serious interest in exploration. The Company, for its part, endeavoured to show that it had sent out many exploring expeditions since 1719, although in fact most were strictly trading expeditions. When four of Dobbs's former leading merchant supporters testified that they were not prepared to send out further expeditions, the final blow was given to the North West Committee's application.

Section of a French map of 1678 by J-B Franquelin.



PUBLIC ARCHIVES OF CANADA

As a result of Dobbs's activity, a considerable section of the west coast of Hudson Bay had been carefully surveyed. A major entrance had turned out to be a false lead. And the Hudson's Bay Company's monopoly had been unsuccessfully challenged.

Up to 1749, little had been done to survey the eastern shore of the Hudson Bay—the "East Main". Company vessels stayed away from its island-strewn shore, while explorers searched the western side of the Bay. During the early 1740s Indians told of a series of lakes on the Labrador peninsula in a beautiful setting where both Indians and Eskimos could be found. As a post there might help to offset French competition, the Committee ordered an investigation. In 1744 two sloops were sent to explore the coast. They covered some three hundred miles, were whirled through the narrow passage which they named Gulph Hazard, into a large salt-water lake known now as Richmond Gulf. As the expedition lacked trained surveyors, the information returned was largely verbal, for the sketch maps left much to be desired.

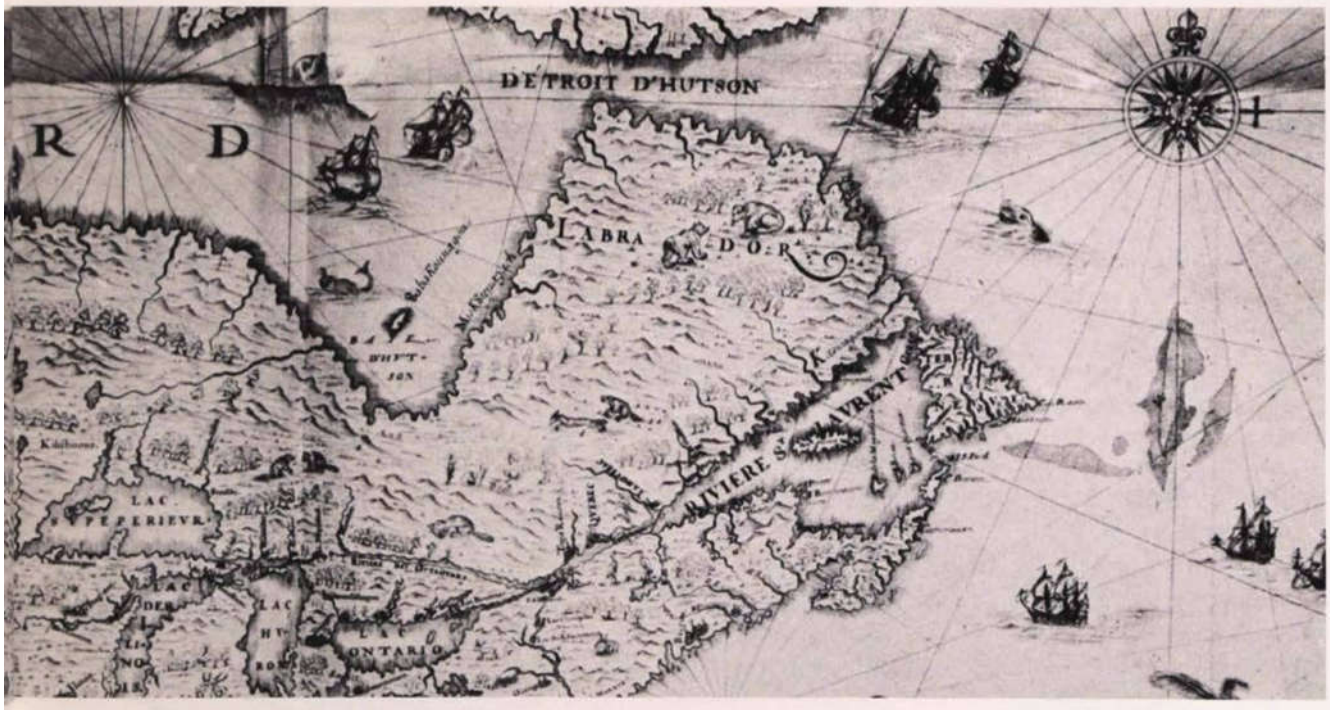
War with France prevented a better survey until 1749, when William Coats was sent out from London with the ship *Mary* and the sloop *Success*. He was instructed to chart the coast, seek a place for a post, determine the possibilities of trade and mining, and make a natural history collection. Unlike his immediate predecessors, Coats was accomplished in marine surveying. He made a running survey of the coast south from Cape Digges, negotiated the raceway of Gulph Hazard, and wrote a highly rhetorical description of the beauties and advantages of Richmond Gulf as a site for a trading post. Despite the imperfections of his hurried survey, the charts produced were a substantial improvement on earlier ones. (See *The Beaver* Winter 1963.)

During the 1750s the sloop assigned to Fort Churchill was sent northward in the summer to trade, usually with additional instructions to make surveys and discoveries. Trade and exploration were basically incompatible, and little was accomplished.

A new phase of exploration began with Moses Norton, second factor at Churchill. In 1760 he went to London with manuscript maps showing deposits of salt, coal, pitch and copper, and the locations of Indian tribes who dressed in beaver and marten skins. He obtained instructions to carry out explorations during the next three summers.

In the summer of 1761, William Christopher in the *Churchill* sloop discovered Chesterfield Inlet and travelled 90 miles up the Inlet without definitely determining its nature. The Committee in London followed all these activities with care, and in the following May wrote Christopher, "We expect in Conformity to our Orders . . . you have this year also proceeded [to Chesterfield Inlet] in further Search thereof, and that by Mr. Norton's

This early map shows Hudson Bay swinging west to the elusive northern passage that would lead to the Orient.



Assistance such a perfect search and Discovery thereof hath been made, as by your Journals, Draughts, and letters to be Transmitted to us. . . we may be able to Collect with certainty whether such Opening be a Streight or a River, or whether it terminates in a Bay."

In 1762 Christopher and Norton penetrated Chesterfield Inlet to a depth of 200 miles without discovering the Passage, minerals, or furs. The Committee commended their diligence, despite their lack of success, and in the two succeeding years instructed Norton to explore two more entrances to the north of Whale Cove and Marble Island. At the end of the 1764 season, however, Norton wrote, "I am certain and Shure that there is no Pasage into ye Western Ocan in this Hudsons Bay . . . there is no likelihood of any further Discovery in Pasage or a Large River after So many attempt . . ." The Committee accepted Norton's opinion, merely instructing him and the sloop's commander to be diligent in their inquiries among the Indians regarding rivers farther north. "We hope," they wrote, "to hear that the Sloop has been sent this Year upon a Trading Voayage . . ."

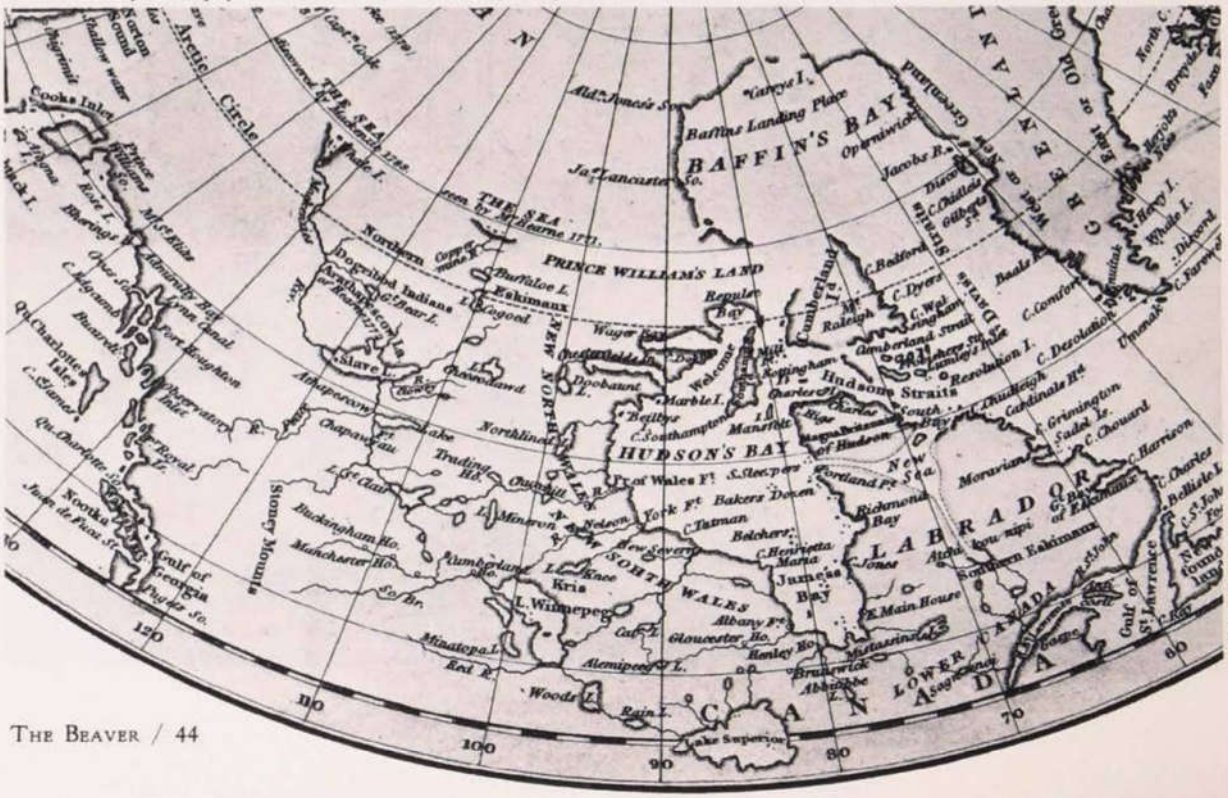
Attention now shifted inland. The close of the Seven Years' War in 1763 had released new forces in the fur trade. No longer did the Company face a regulated, monopolistic competition from Montreal. French control had been removed and support withdrawn. Now it was every man for himself as canny Scots competed with hardy *Canadiens*, spreading out through the wilderness, developing new routes and visiting new tribes.

A more aggressive policy was required to meet the new situation. Even without the new competition, the information that Moses Norton brought to England in 1768 was of sufficient importance to require investigation. Norton showed the Committee copper samples and a map which two Indians had brought to Churchill the preceding summer. Contrary to Middleton's chart, this map showed the coastline of Hudson Bay swinging west to the mouth of the Copper River! Norton proposed to send out a man to live with the Indians and "find out the Straits of Anian, in order to discover gold and other valuable commodities to the Northward. . . ."

The Committee, on Norton's recommendation, appointed Samuel Hearne to command a party of two or three Europeans and six or eight Indians. Hearne was 24 years old, formerly a midshipman, and at the time a mate on the Company's *Churchill* sloop. He was to take navigation instruments to determine his position. He was not to trade, but rather to encourage the Indians to come to Churchill. He was to follow the "Far Off Metal River" to its mouth and to determine "whether there is a passage through this continent" from Hudson Bay to the Pacific.

Hearne set off with a party of Indians in late 1769. The Indians took him with them for about 200 miles. then robbed him of everything, leaving him to make his way back to Churchill as best he could. On his second attempt he remained with the Indians about eight months before they cast him out. Returning from this fiasco, he fell in with Matonabbee, a Chipewyan Indian who was headed to Churchill. After a short stay, Hearne started out with Matonabbee in December 1770 on his third attempt.

Section of a map published in 1818 showing the points on the arctic coast reached by Hearne and Mackenzie.


Arctic Circle
BAFFIN'S BAY
HUDSON'S BAY
Hudsons Straits
LABRADOR
NEW SOUTH WALES
PRINCE WILLIAM'S LAND
THE SEA
Northern Ocean
Cumberland
Melville I.
Prince Patrick I.
Banks Land
Wollaston Land
Victoria Land
Prince Albert Land
Prince of Wales Land
Boothia Land
Regent Inlet
Fury and Hecla Str.
Repulse Bay
Wager
Southampton I.
Marble I.
Melville Peninsula
Cape Dobbs
Cape Fullerton
Churchill
Nelson R.
York Fort
Prince of Wales Fort
Severn R.
Albany Fort
Moose Factory
Gloucester House
Rupert R.
Abbitibbe L.
Lake Superior
Lake Winnipeg
Red R.
Woods L.
Slave L.
Slave R.
Great Bear L.
Great Slave L.
Athapescow L.
Copper Mine R.
Coppermine R.
Cape Krusenstern
Cape Parry
Cape Barrow
Cape Bathurst
Cape Lyon
Cape Dalhousie
Cape Dundas
Cape Comfort
Cape Desolation
Cape Chidley
Cape Harrison
Cape Charles
Cape Bauld
Cape Farewell
Cape Walsingham
Cape Dyer
Cape Walstenholme
Cape Byam Martin
Cape Hearne
Cape Jones
Cape Henrietta Maria
Cape Tatnam
Cape Churchill
Cape Eskimaux
Cape Fisher
Cape Perry
Cape Kellett
Cape Lisburne
Cape Prince of Wales
Cape Krusenstern
Cape Beaufort
Cape Halkett
Cape Bexley
Cape Bathurst
Cape Parry

NORMAN WILKINSON, HBC COLLN.

The "Dobbs" and "California" with Company ships en route to Hudson Bay in 1746 leave their escort H.M.S. "Shark" off the Orkneys.

Matonabbee conducted Hearne to the mouth of the Coppermine River. Rather than a rich mine, Hearne found a single four-pound copper nugget in the gravels near the river's mouth. He had clearly demonstrated that any Northwest Passage must lie in the Arctic north of the mouth of the Coppermine. A poor determination of his latitude led geographers to believe for a time that the northern coast of the continent lay several degrees north of its true position.

The eighteenth century was to witness one more major assault on the Arctic, albeit unintended. The North West Company had been formed in 1787 by the Montreal fur traders to bring some order out of their wild competition. As a result of the merger, Alexander Mackenzie took over the trading posts which had been established on the Athabasca River and the Great Slave Lake. Peter Pond, his predecessor, had proposed to explore the river which flowed out of Great Slave Lake. Pond believed the lake extended 700 miles farther west than it did in fact, and that it drained into the Gulf of Alaska through Cook's River (Inlet). Mackenzie picked up Pond's idea and prepared to make the journey, hoping that if he reached the sea, "Government might be induced to grant [the North West Company] a charter and Exclusive Right in the lucrative Furr trade in those parts." The evidence suggests that Mackenzie did it on his own initiative, keeping his project secret from the other North West Company partners.

On 3 June 1789 Mackenzie set off down the river that has since borne his name, with a half-dozen men and four women. He reached the mouth of the great river on 10 July and stood on the shore of the Arctic Ocean, far from the Gulf of Alaska. Mackenzie had discovered a practical route to the Arctic Ocean, for the portages were short and rapids few compared with either the Coppermine or Back's Great Fish River. Moreover, through the rivers and chains of lakes which drained into it, one could travel tremendous distances by canoe with a comparatively short crossing from the Mackenzie's tributaries to the river systems draining into the Great Lakes and the Mississippi.

In a little over a century between 1668 and 1789 the shores of Hudson Bay had been explored, two rivers traced to the Arctic, and the theory of a Northwest Passage in temperate latitudes disproved. Only one expedition, Middleton's, had been financed by Government; a second, that of Moor and Smith in the *Dobbs* and *California*, had been carried out by speculators organized for the purpose. The remainder had been carried out as incidental to the fur trade and, with the exception of Mackenzie's exploration, by a single firm, the Hudson's Bay Company. ◆

The Ojibwa

Text by E. S. ROGERS
Drawings by LEE UPDIKE

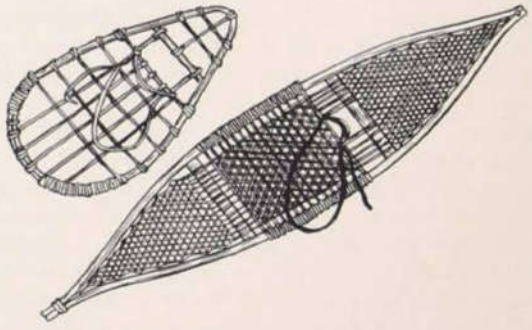
THE OJIBWA, also known in some areas as Chippewa, Saulteaux, Bungi or Mississaugas, spoke a dialect or series of closely related dialects of the Algonkian linguistic family which also included the Potawatomi and Ottawa. The Algonkian language was spoken throughout most of Eastern Canada at the time of European contact. The Ojibwa, though, were confined to the region of the Upper Great Lakes. After the arrival of Europeans, the Ojibwa expanded westward into Wisconsin and Minnesota, some even extended as far as the Plains, and southeast into southern Ontario. They reached their maximum extent during the eighteenth century. The Ojibwa have numbered as many as 25,000 individuals, although the population fluctuated with the vagaries of epidemics and the fortunes of war.

The country inhabited by many of the Ojibwa was within the Great Lakes Forest, originally consisting of red and white pines, hemlock and yellow birch. In addition, there were balsam fir, white spruce, sugar maple, oak, basswood, elm, aspen, ash, beech, and white birch. In the north, Ojibwa occupied a southern sector of the Subarctic Boreal Forest consisting of dense stands of black spruce with here and there white birch, poplar, cedar, and jack pine. The land of the Ojibwa was dotted with lakes and ponds connected by a network of streams and rivers but dominated by Lakes Superior and Huron. In general, it was quite a flat or gently rolling country. No major mountains occurred. The winters were cold, the ground covered with snow and the lakes and rivers frozen over six months of the year. A variety of mammals inhabited the forests: moose, caribou, white-tailed deer, black bear, beaver, otter, mink, ermine, wolves, foxes, skunks, and porcupines. The lakes and rivers contained whitefish, trout, sturgeon, bass, perch, pike, and pickerel. Both spring and fall, waterfowl migrated through the area in large numbers. Also present were shore birds, grouse, snipe, quail, passenger pigeons in vast flocks, and many song birds.

Although primarily hunters and fishermen, some Ojibwa at times raised a few crops such as maize. Furthermore, they are noted for their extensive use of wild plants both for food and medicinal purposes. To some, wild rice was almost a staple crop and maple sap was collected wherever possible. In general, the Ojibwa had a diversified economy utilizing a wide range of natural resources.

Autumn was a time when as much food as possible was secured for the winter months ahead. On the St Mary's River at Sault Ste Marie, Ontario, a noted fishing station existed where each fall large schools of whitefish migrated upstream. Ojibwa gathered here to take advantage of this bounty. In a birchbark canoe, two men navigated the rapids slowly moving upstream in search of fish. A man in the stern with a paddle manoeuvred the canoe; a man in the bow kept on the alert for fish. When one was spotted, he gave directions to the paddler who propelled the canoe into position. The fisherman now deftly scooped the fish from the water with a dip-net and into the canoe. Large numbers could be secured in this manner in a relatively short time.

Another method was to spear fish with the aid of a torch which attracted the fish. A torch of birchbark was secured to the bow of a canoe manned by two men who at night paddled along the shore of a lake or stream. By the light, fish could be spotted. The bowman would then impale one with a spear, throw it into the canoe, to repeat the performance when another fish appeared.



Bearpaw and pointed snowshoes used by the Ojibwa.

Knocking the grains off the wild rice into the bottom of a canoe. In some areas the heads are tied with soft inner bark as a protection against wind and wildfowl and looped in such a way that each family can identify its own rice.

Those Ojibwa who in historic times migrated from the region of Sault Ste Marie west into what is now Wisconsin and Minnesota found themselves in a country rich in wild rice. Elsewhere, rice was not as plentiful, yet the Ojibwa living in Ontario west and north of Lake Superior gathered it wherever they could. During the fall, parties camped close to the rice lakes and when weather conditions were favourable and the grain ripe the crop was harvested. Two people went out in a canoe, one to paddle or pole; the other to gather in the rice. This was done with two long thin sticks, one with which to bend the tops of the stalks over the canoe and the other to knock the grains into the bottom of the canoe. Later the rice was winnowed and dried for winter use.

Besides fishing and gathering wild rice, the men hunted. Deer were a principal animal sought and often attracted within range with a "caller", a practice also used for bull moose. Waterfowl were taken whenever the chance arose.

Near the end of fall, the large summer encampments of Ojibwa disbanded for the winter. In small groups of several families each, they scattered to hunting areas where they lived until the arrival of spring. During the long months of winter a constant search had to be made for food since that secured in the fall was not sufficient to last for more than a few months. The hunters sought a variety of game for food. Fur bearers became important after the arrival of European traders.

For the capture of game animals, the Ojibwa used bows and arrows, deadfalls and snares. Fishing was undertaken, sometimes by the "peephole" method. A hole was cut through the ice and the fisherman knelt beside it. He covered himself and the hole with a bison robe to keep out the light so as to enable him to see into the water. A small wooden decoy fish was let down on a line into the water and slowly pulled back up, simulating the movements of a small fish and hopefully attracting a pike toward the hole. When this occurred, the fisherman who held a spear in his right hand, attempted to impale the fish.

The small extended family groups that spent the winter in isolation lived in conical or dome-shaped lodges erected in sheltered spots near a lake or river. The lodges were covered with bark or rush mats. Inside, an open fireplace supplied the necessary warmth and light for the long winter nights. When outside, the Ojibwa were protected from the cold by clothing—moccasins, leggings, breech clouts and jackets or robes—made of hides. After the advent of the European traders the Ojibwa were able to acquire cloth from which they made their clothing, at first patterned after traditional styles. To traverse the snow covered land in search of game, the Ojibwa hunters employed toboggans and several types of snowshoes. Mothers carried their youngest children in a cradle board or *tikinagan*.

With the return of warm weather life became easier. The isolated groups began their return to the summer rendezvous. On the way, family groups established camps in maple groves and here spent a few weeks tapping the trees, collecting the sap in birchbark containers and boiling it down to syrup. There is some question as to whether or not maple sugar was produced before traders supplied the Indians with metal axes and kettles. Previously, it may not have been possible to collect with the aid of stone tools the immense quantities of firewood necessary to transform the sap into sugar or to boil it down by using stones heated red hot.

Once the maple sap had been collected the Ojibwa moved by birchbark canoes to their summer encampment. Here a number of related families gathered, totalling from one to several hundred individuals. They erected not only conical and dome-shaped dwellings but also long barrel vaulted or double pitched roofed lodges each housing several families. The village was located on the shores of a lake or river where fishing was productive. Sturgeon were eagerly sought and taken with spears. Nearby the villagers cleared land and planted maize and squash. However no great effort was expended in gardening, hunting and fishing being of most importance. Berries were gathered as they ripened.

Summer was primarily a season in which to relax from the strenuous food quest of winter since now there was not the fear of hunger. Other pursuits such as sports and rituals could be undertaken. The Ojibwa enjoyed a variety of games, some of them gambling: the moccasin game, dice, straws, the ring-and-pin game, lacrosse, a special ball game played by the women, and foot races. The children had dolls cut out of slippery elm bark or made of grass, willow withes or cloth stuffed with grass. Besides sports, some individuals made rush mats, bark containers, woven bags of cedar bark.

Shaman curing a patient by using a sucking tube to withdraw the cause of the illness.

Dome-shaped lodge covered with black ash and birch bark. Left: baby on its cradleboard or tikinagan which would be carried on its mother's back.

Ojibwa preoccupation with health and illness engendered considerable thought and action. Home remedies were numerous and some shamans were reputed to have the supernatural power to heal. In addition, the Ojibwa had a society, the *Midewiwin*, composed of both men and women, devoted to the curing of the sick. It has been referred to as Ontario's first "medical society". As a rule, the society held its ceremonies during the summer after the people had gathered together in their villages. The members held their performances in a long barrel-shaped lodge and the rituals, in which drums and rattles were used, occupied several days. Shamans sometimes cured by sucking out with a bone tube an intrusive foreign object which was causing an illness.

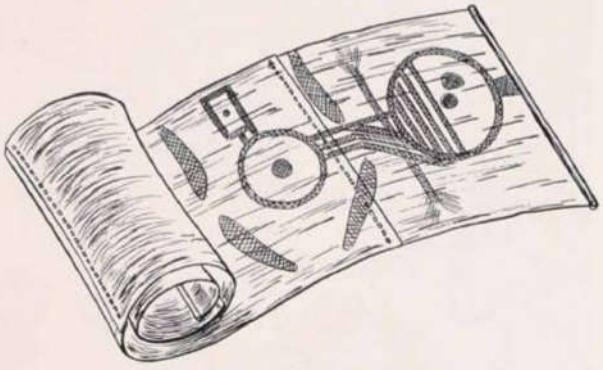
The society consisted of eight ranked grades. An individual, if he had sufficient wealth with which to pay the fees required, could elevate himself through a series of initiations to the eighth or highest grade. Each member had his own medicine bundle containing various items. Perhaps the most important were the *megis*, small white shells which the owner "shot" from a decorated otter skin into a patient and other members during a performance. Another important ritual item was the birchbark scroll on which were etched mnemonic symbols representing the stages within the society through which the individual had passed and various revelations and instructions he had received.

Although the shamans, whether members of the *Midewiwin* or not, attempted to cure the sick, they were not always successful and the patient died. The Ojibwa buried their dead and erected a grave house over the interment. An opening was left at one end of the house so that food could be presented to the spirit of the dead. With the corpse were placed his worldly possessions for use in the afterworld.

With the close of the summer festivities, the Ojibwa harvested their few crops. Sometimes, because of early frosts, the maize had to be picked while still green, the season being too short for it to ripen. With the harvest completed, a new round of yearly activities commenced. The village was abandoned and the people departed for their hunting grounds.

For more than three hundred years, the Ojibwa have been in contact with Europeans. During this time great changes have taken place in their way of life. First, they were involved in the fur trade and the wars between the French and English for control of North America. After Britain gained the ascendancy, the Ojibwa were encouraged to sign treaties, a process that has lasted into this century. With the signing of treaties, the Ojibwa began to settle on the reserves assigned to them. Here they took up farming, emulating in many ways their rural Victorian neighbours. With the outbreak of World War I, a high percentage of the able bodied men enlisted in the armed forces and served Canada with distinction. Farming ceased shortly after the war and the Ojibwa began to leave the reserves and move into the industrial world of the Euro-Canadians and Americans. ◆

Midewiwin equipment—water drum, megis, otter skin, and rattle.



Birch-bark Midewiwin scroll with engraved symbols.

TO BRIDGE THE GAP

By William R. Hunt

Assistant Professor of History
at the University of Alaska

THE NARROW BODY OF WATER separating northeast Asia and northwest America has caused much concern: first to those who were uncertain of its existence; then to others who wanted to close somehow the gap of Bering Strait between the great continents. The passage is only fifty-five miles wide, and contains the Diomede Islands through which the present U.S.S.R. and U.S.A. boundary runs, yet it has remained the focus of speculation from the sixteenth century till today.

Conjecture from the sixteenth to the mid-eighteenth centuries concerned the possible existence of a water-way separating Asia and North America. A map made by Benedict Montanus in 1571, like others in the sixteenth century, shows the two land masses firmly attached, but near the century's end cartographers began to favour the existence of two distinct continents, and by the early seventeenth century all important maps showed a division. The narrow water dividing the continents is generally referred to as "Anian" on the maps.

Of course, the cartographer's supposition was accurate, but it took the arduous, costly labours of the Vitus Bering expeditions (1725-1741) to determine the question: Anian then became Bering Strait. It was on the second of the two voyages that Bering and Chirikov discovered Alaska, an endeavour which cost Bering his life. Russian efforts were originally sponsored by Peter the Great, and were the world's first truly scientific expeditions. Presumably Peter had been encouraged by European savants to settle the vexing question of Asia's connection with North America. Bering's voyages not only settled the geographic question, but led to Russia's North Pacific expansion.

Russian knowledge of the North Pacific grew as *Promyshlenniki* (exploiters of natural resources—fur hunters) moved along the Aleutians in quest of the valuable sea otter. In 1780 presses in both St Petersburg and London published rather accurate maps of the region —the English charts rested on the exertions of James Cook, who used the results of his own surveys and information given him by Russians encountered on Unalaska.

Apparently the first person to conceive of the possibility of travelling from Europe to America's Atlantic coast via the North Pacific was the American, John Ledyard, who had accompanied Cook on the northwest coast voyage. Ledyard, a true adventurer, hoped to cross over to Alaska from Siberia, then proceed overland to the Atlantic. His hope of making the first crossing of America north of Mexico was frustrated in 1788 by Russian authorities who stopped his progress at Yakutsk, apparently because he had been too impatient to wait for authorization in St Petersburg. He had travelled over 4,000 miles from St Petersburg to the Lena River but he got no farther as he was escorted back to the capital.

It is interesting that Alexander Mackenzie, who accomplished part of Ledyard's goal—the first American crossing north of Mexico—had earlier hoped to cross over to Russia as well. Had he done so, he would have achieved

Ledyard's purpose, though travelling in the opposite direction.

Alexander Mackenzie completed the continental crossing from the east in 1793, but on his earlier attempt in 1789, Peter Pond of the North West Company commissioned Mackenzie to voyage "down the River, and from thence to Unalaska, and so to Kamskatsha, and then to England through Russia &c." No government officials kept Mackenzie from presenting his respects to Empress Catherine: he found himself on the Arctic rather than the Pacific Ocean after descending the river now bearing his name.

The next attempt to link the two continents, thus in a sense closing the gap so laboriously discovered by Bering, reflected technological advances: the hope of joining Europe and America by telegraph.

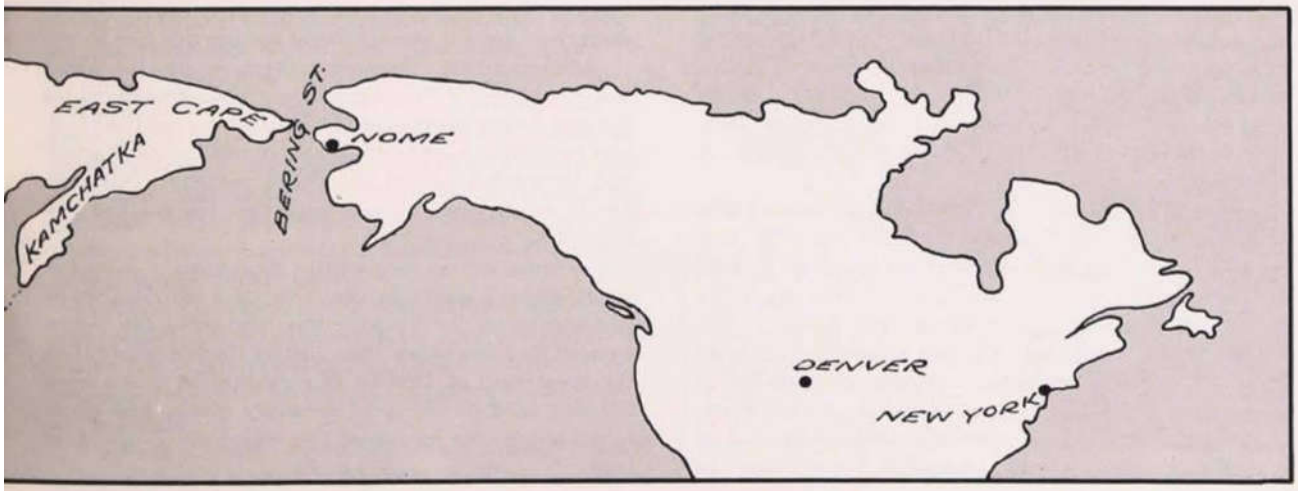
Because the Atlantic telegraph cable, first laid in 1855, broke so frequently, it seemed reasonable to lay one across the few miles separating Eurasia and America at the Bering Strait. Perry Collins, United States consular agent at the mouth of the Amur, sold his concession to build a line to the Western Union Telegraph Company, which undertook the task in 1865. But the link was not to be completed. Western Union, after heavy expenditure, abandoned its effort after a second, effective Atlantic cable went into operation in 1866. The expedition's scientific work in Alaska had permanent results in opening that great territory even if the main purpose was a failure.

After the telegraph came the railroad. What could be more tempting to the railroad building age than the completion of the Northwest Passage by rail across the narrow Bering Strait? Vilhjalmur Stefansson has summarized some of these promotions in his book *Northwest to Fortune.*

The earliest visionary to suggest a railroad was the first territorial governor of Colorado, William Gilpin. The city of Denver, argued Gilpin in 1861, deserved to be the centre of the world by virtue of its location. A railroad should cross the continent from New York to Denver, then turn north to the Northwestern Territory (present Alberta), Alaska, and the Bering Strait, where a ferry could take the trains across to Siberia, meeting the connecting links there which would eventually bring them to Europe. In 1890 Gilpin still insisted on the practicality of his scheme. His book, *The Cosmopolitan Railway compacting and fusing together all the world's continents . . .*, echoed the opinion of Frederick Whymper whose experience with the Western Union Overland Telegraph Expedition convinced him of the feasibility of a Bering Strait railroad connection.

Over the years a few other individuals expressed interest in the railroad possibility. One of these may have been Edward H. Harriman. Stefansson believed that Harriman's "leisurely vacationing expedition" in 1898 up the Alaskan coast to Bering Strait—a cruise on which he invited leading American scientists—was a reconnaissance of railroad possibilities. Whether Stefansson's conjecture is right, Harriman did not follow up on any such project. But, again, as with the abortive Western Union Telegraph Expedition, much valuable knowledge of Alaska was gathered by Harriman's guests: William H. Dall, John Muir, John Burroughs, C. Hart Merriam among them. Dall was the leading expert on Alaska, having journeyed there in 1865 with the Telegraph Expedition and on several subsequent occasions. His *Alaska and its Resources*, published in 1870, was the result of the scientific efforts of the Smithsonian Institution scientists attached to the Telegraph Expedition.

But more colourful than the corporate interests in a trans-Bering connection are the individuals whose personal mission embraced the goal of crossing Eurasia and North America by land. John Ledyard's example encouraged two Englishmen, Captain John Dundas Cochrane and Harry DeWindt. Both were travellers of particular distinction and marked eccentricity.



Captain Cochrane undertook his Siberian journey in 1820, after the British Admiralty refused his offer to explore Africa's Niger River. The end of the Napoleonic Wars meant unemployment for many naval officers, thus Cochrane, richer in time than money, walked across Europe and into Siberia.

Cochrane endears himself to the reader at once by announcing in his preface: "It has *not* been the kind partiality of my friends, the common apology for an uninteresting or ill written book, which as induced me to launch upon the world the following narrative." Personal expense of a guinea took him what he calculated as 6,000 miles from Moscow to Irkutsk; of course, he had much help along the way, particularly in Siberia where government officials provided his transportation. His ambition was that of John Ledyard—to travel around the world by land so far as possible. He meant to cross over to Alaska from Siberia.

Suspicion of Ledyard's intentions prevented him from reaching eastern Siberia, but the determined officer, after being warned not to inquire into the affairs of the Russian American Company, met no official obstacles, and was given a Cossack escort throughout his Siberian journey. While still in European Russia he was robbed of his clothes and money then, soon after, lost his passports, but the Captain personified the indomitable spirit of Britain's best—he kept right on. What self confidence these Englishmen had! To be an Englishman in the nineteenth century was to be a traveller, and however inclined they were to make their domiciles in India and elsewhere as comfortable as "at home," they could adapt themselves to the worst conditions quite readily. "I was never so happy as in the wilds of Tartary," says Cochrane; and what better evidence could one offer that he was a good traveller?

Food presented no problem, "Spite of our prejudices, there is nothing to be compared to the melting of raw fish in the mouth; oysters, clotted cream, or the finest jelly in the world is nothing to it."

The sun's reflection from the snow affected his eyesight for a time, "but I met it with a good grace, as neither sun nor snow would give way to me."

Among the Yakuts Cochrane acted as a physician, treating asthma, palsy, sore eyes, and other ills. Patients were plentiful because he made no charge for his services. "Had I possessed a medical book I might probably have done some good."

Cochrane mistrusted the natives who offered him transport to America assuming, probably correctly, that they harboured larcenous intent. At Okhotsk he decided not to attempt to reach America just then since the "naval expedition [Perry's] is on the same tack".

The Russian American Company gave him passage from Okhotsk to Kamchatka, a voyage enlivened by his observation of a battle between a whale and a swordfish, in the course of which he heard the whale groan. But in Kamchatka the Captain's ambitions gave way to romance; he married a Kamchatka girl and after a time returned with her to England.

UNIVERSITY OF ALASKA LIBRARY

Traveller Harry DeWindt in arctic dress.

The first attempt to travel by land from North America to Europe was made by an English explorer, Harry DeWindt, who journeyed through Alaska to the Bering Strait and Kamchatka. On his first attempt he was thwarted in his hope of crossing Siberia to Europe. Uncooperative Chukchi natives would not provide him means of transportation. Somewhat hysterically, DeWindt thought himself a "virtual prisoner" and considered his life saved when his tattered Union Jack brought the U.S. revenue cutter *Bear* to his relief. It was the *Bear* which had ferried him across the Strait initially. This time DeWindt remained aboard until the ship reached San Francisco.

DeWindt, a thin faced little man bearing a magnificent imperial mustache, was a bit of a liar. In 1896 he journeyed over the Chilkoot Pass and down the Yukon en route to Kamchatka, thus visiting the Klondike before the great rush of 1897-8. The publication of his book followed hard on the gold discovery mania, and established him as *the* expert on the region—in England, at least.

Presumably he made the trip he described, but a few fantastic embellishments do no credit to a Fellow of the Royal Geographical Society: "I drank more than once from the clear brooklets that, fringed with cool green ferns and wild flowers, came rippling down the mountainside. But I paid dearly for my rashness by suffering for many hours after from the raging thirst that snow and glacier water invariably create."

Yukon mosquitoes tortured dogs to death in a few hours, according to DeWindt, who may be forgiven for passing on the kind of tales veterans told tenderfoots.

More reprehensible was his description of the Chilkoot Pass, the main route to the Klondike during the Rush: "The Chilkoot cannot really be called a pass. It would be considered a dangerous mountain in Switzerland, and a question of guides, ropes, and ice axes." An illustration in the book supported his statement: it shows an almost perpendicular cliff.

Pierre Berton gives a fascinating description of the Chilkoot route in *Klondike*, but indicates that the 1,000 foot slope was 35 degrees. The climb was difficult enough for those who had to make it repeatedly, transporting a ton of supplies which Canadian authorities required each prospector to bring along, but if it was really "the severest physical experience" of DeWindt's life—as he claimed—then one wonders how he got about in Central Asia, Siberia and the Middle East, where he travelled extensively.

Public interest in linking the continents by rail was sparked by the Trans-Siberian railroad's completion in 1901. Additional incentive existed in the discovery of gold in Alaska, which suggested a rich economic potential for the North Pacific region.

DeWindt tried the route again in 1901, this time travelling east from Europe. A Franco-American Syndicate hoped to tunnel or bridge the Bering Strait, and run a branch line from the Trans-Siberian railroad across to meet a proposed Alaskan railroad. The tireless traveller investigated the route's feasibility for a syndicate formed by several newspapers. From Paris to Irkutsk, DeWindt journeyed by rail, 4,000 miles in nine days, then by sleigh for the remainder of the trip. East Cape, which he eventually reached, is 11,263 miles from Paris.

Again, DeWindt relied upon a U.S. revenue cutter to cross the Strait to Cape Prince of Wales, eventually reaching Nome. Nome's gold rush days were waning, but there was still much excitement in 1901. Everyone gambled, drank champagne and exchanged data on placers and ores. It struck the Englishman as being "a kind of squalid Monte Carlo".

DeWindt's conclusions on the feasibility of a rail route were pessimistic: it would cost too much to bridge or tunnel the Strait. Though he did not recommend the proposal, he seemed certain that a railroad would come in the future.

President Theodore Roosevelt always enjoyed talking to travellers and invited DeWindt to the White House on one occasion. The Englishman was a frightful snob—his autobiographical writings are laced with derogatory references to the vulgarity of the new rich of England and America—but Roosevelt impressed him very much. DeWindt took no offence at Roosevelt's amusement over the possibility of a Bering railroad. The President pictured the condition of unfortunate passengers whose train might break down in the arctic region, then gravely commissioned DeWindt to place a car at his disposal on the first Paris-bound express.

Perhaps the realization of this old dream lies in the immediate future. Alaska is currently surveying a rail line from Fairbanks to Nome. Recently, too, the Soviet government has expressed interest in damming the Strait in order to warm the Arctic Ocean, thus extending the navigational season of the Northeast Passage. This project would include a causeway connecting the continents which would carry a highway or railway. Political and economic considerations are probably greater than the technological problems involved—but some day we may realize the aspirations of Ledyard, Cochrane and DeWindt. ◆

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DeWindt's fanciful version of the Chilkoot Pass.

PASSER DOMESTICUS

PHOTOS BY LEONARD LEE RUE III

Here is a bird that everybody sees but few really look at: a sparrow that is not really a sparrow at all: an emigrant from Europe: the House Sparrow, sometimes called the English Sparrow. This is the sole representative in Canada of the weaver finch family which is native to Europe, Asia and North Africa. House Sparrows were taken to New York in 1850, somewhat later to eastern Canada, and have been taken by man to all parts of the world in the temperate zone. Since their introduction to North America they have spread across the continent, and as far north as the Northwest Territories and south to Mexico. The gregarious, chirpy, aggressive House Sparrow is hardy and adaptable. A natural seed-eater, it finds sustenance in cities, roadsides, fields, and garbage dumps, and in winter it will squeeze into crannies in a building to survive forty below zero temperatures. The sparrows have increased to such numbers that they are regarded by many as a pest for not only are they messy about buildings but they drive away native birds by monopolizing food and nesting places and by their pugnacious ways. To give him his due, this perky, ubiquitous little creature can look attractive, perched alertly like the male in the photo, who is distinguished from the rather more drab female by his black bib. The other sparrow is vigorously attacking his reflection in a window.

NORTHERN BOOKS

SASKATCHEWAN JOURNALS AND CORRESPONDENCE 1795-1802

Hudson's Bay Record Society, Volume XXVI. Edited with an introduction by Alice Johnson, London, 1967. cii, 368 pages. Issued to members of the Society.

Reviewed by Richard Glover

Reviewers of Hudson's Bay Record Society volumes have constantly praised the care and thoroughness with which they were edited. The person who over the years has deserved most of this praise is the Company's recently retired archivist, Miss Alice Johnson. In the present volume she appears not only as the editor but as the author of the Introduction; and the job she has done is as excellent as one would expect from her past performances.

The seven years with which she deals were a difficult period for the Company. Britain's greatest war with France had started in 1793 and, with the short break made by the Treaty of Amiens between 1802-3, was to last till 1814. It was a time of rising prices and shrinking markets in Britain where the Company had to buy its trade goods and sell its furs. Historians of the war know it as a period when press-gangs conscripted unprecedented numbers of seamen for the Royal Navy and when the land forces grew larger than in any previous war. Likewise the government was seeking to employ every gunsmith capable of making an efficient musket.

Such years were inevitably hard for a company which needed men to paddle canoes up rivers and carry trade goods over portages. But in 1795—the first year with which Miss Johnson deals—the army lowered its physical standards to the point of taking men only 5 feet 2 inches tall; and in this summer, as she looked over the Company's new hands at York Factory, James Spence's Indian wife said to her husband "James, have you not always told me that the people in your country are as numerous as the leaves on the trees? How can you speak such a falsehood? . . . the very last of them is come; if there were any more, would these dwarfs have come here?" Two years later, in 1797, the Company's agent in the Orkneys (whence most of its men came) only made up his quota by including boys of 12 and 14; worse still, in 1799 no new men at all came out to replace those returning after their contracts expired.

That was one result of Britain's war with France. Another appears in the Edmonton House Journal for 25 October, 1795. This reads: "I am sorry to inform your honours that there is great complaints from all quarters against the guns" which were so bad that they often burst and "many Indians has lost part of their hands and others have lost the whole hand". This report from the Saskatchewan is some indication of the British government's success in securing the services of every competent gunsmith in the island. But it was a success that brought little benefit to the fur-traders; and similar, though less serious, complaints occur in later journals.

These, then, were poor years in which to expand the Company's ventures. Yet the Company had no choice but to expand. It faced keen competition from the Montreal traders who had united to form the Northwest Company in 1783, and competition grew still keener when the XY Company entered the fray after 1798. The Canadians must have faced the same difficulties as the Hudson's Bay Company in getting trade goods and marketing furs in war-time; but they had advantages which Miss Johnson describes in pages which should be balanced against Alexander Mackenzie's much quoted account of the length of the Nor'-Westers' journeys. The Montrealers could recruit "a much larger labour force . . . in Canada without hindrance from press-gangs and Government regulations"; at the annual meeting at Grand Portage wintering partners and Montreal agents could iron out the problems of their trade; news from London reached the Saskatchewan more quickly by way of Montreal than by way of York Factory. For want of men the Hudson's Bay Company carried fewer trade goods to fewer places than their rivals. For want of meetings at some central spot they too often competed with each other as well as with their rivals, men from York competing against those from Churchill and from Albany.

The Company's representatives who struggled with these difficulties included some interesting people. First, of course, there is William Tomison, an old servant, a good linguist, expert canoeman, and thrifty trader; a "truly honest, kind-hearted man who would have made a first rate steward, but was not adapted to be at the head of affairs," in David Thompson's opinion. Not all would agree with David Thompson, however, for Tomison's cantankerousness made enemies among his fellow H B C men as well as the Montrealers. He was indeed unfit to be at the head of the Company's affairs for his actions sometimes seem devious and he was a poor disciplinarian. Yet he had worked long and hard, few can have rivalled his knowledge of the fur trade and the London directors trusted him.

Next there was Joseph Colen, who as chief, under Tomison, at York Factory was in a most unenviable position. No man can serve two masters; but Colen was often torn between directions from England to do one thing and the determination of Tomison to do another. It was perhaps natural for the London Committee to resolve the conflict between these two by recalling Colen, the younger and less experienced. But they may have picked the wrong man; and one hopes that Colen's journals, which do not appear in this volume, will soon be separately published. They are evidently very informative.

Of the others Peter Fidler and James Bird are the best known, but the ablest was probably George Sutherland. At Edmonton House in 1796-7 he remained friendly with his North-West neighbours, got the best fur returns made at this house in the period and built the Company's first boats on the Saskatchewan. These last meant great economy in labour; eighteen men in two boats, wrote Sutherland, transported "goods equal to forty men in canoes".

Naturalists will note two particular observations. Bird describes animals killed near Red Deer, Alberta, as "wood buffalo"; and Fidler watched a black bear chase buffalo into a river and then, when "they were just ready to land," kill a young bull after cutting "the Sinnews of Both hind Legs".

The volume ends with a useful map of the country covered by these journals.

Professor Glover is with the Department of History at Carleton University. His publications include the introductions to several Hudson's Bay Record society volumes as well as the introduction and editing of Samuel Hearne's journey and David Thompson's narrative.

HUDSON'S BAY RECORD SOCIETY

For some three hundred years the Hudson's Bay Company has preserved its documents—archives which now comprise more than thirty thousand volumes and files. With great care this invaluable historical collection has been sorted, stored, and is now catalogued in detail up to 1870. Such records, concerned with all facets of the Company's activities in North America as well as its London administration, are of general interest besides being of particular value to the historian. Recognizing this, the Hudson's Bay Record Society was inaugurated and in 1938 began publication of these archives, the documents selected for a volume being accompanied by an introduction by an eminent scholar. Since then 26 volumes have been published.

Membership in the Society is by election and is normally open to anyone interested, the subscription being $5 a year (one guinea for U.K. residents). Volumes are issued in alternate years, one copy going to each member.

The first twelve Record Society volumes have now been reprinted and are available to non-members at $20 each, paperbound, from Kraus Reprint Ltd., FL-9491 Nendeln, Liechtenstein. Members receive a discount.

Enquiries as to membership in the Society, or from members requiring reprint volumes, should be addressed to The Hon. Secretary, Hudson's Bay Record Society, Beaver House, Great Trinity Lane, London E.C.4, England.

O-KEE-PA

A Religious Ceremony and other Customs of the Mandans

By George Catlin. Edited with an introduction by John C. Ewers. Yale University Press, New Haven and London, 1967. 106 pages. $12.50

Reviewed by Clifford Wilson

This Centennial Edition faithfully reproduces the rare first edition of Catlin's work published in 1867, and includes the still rarer *Folium Reservatum* which details some of the more esoteric features of the ceremony. The reputation of the editor and writer of the introduction, who is senior ethnologist in the Office of Anthropology at the Smithsonian, and a great authority on the Plains Indians of other days, ensures its accuracy as well as the value of the introduction.

"No other Indians of the American West," he writes, "held such a fascination for early explorers and fur traders as did the Mandans of the Upper Missouri." The first explorers to meet them were three Frenchmen from Trois Rivières—La Vérendrye père and two of his sons—who in 1738 accompanied a party of Assiniboines overland from his Fort La Reine (Portage la Prairie of today) to the Missouri, and found the Mandans living on its banks in six large villages.

These, however, were not encampments of tipis, but semi-permanent villages of large, domed dwellings, each group surrounded by fortifications. The people, La Vérendrye decided, were "of mixed blood, black and white," and some of the women had "an abundance of fair hair." Some sixty years later David Thompson journeyed overland from the Assiniboine river to the Mandans. He spent twelve days among them and noted that they raised great quantities of corn, pumpkins, and beans.

In 1804-5 Lewis and Clark spent the winter in a crude fort near a village of these people and attended an elaborate winter ceremony designed to bring the buffalo nearer the village. A description of this peculiar performance is reprinted in the present volume, and is followed by another written by Alexander Henry the Younger. Dr Ewers considers that the latter may have witnessed the ceremony which Catlin calls the "Feast of the Buffaloes"—a sequel to the performance of the *O-kee-pa*.

Twenty-five years elapsed between Henry's visit and Catlin's but the latter, says Dr Ewers, "provided the most substantial contribution to our understanding of Mandan ceremonialism". He was astonished at what went on in their rituals, but his surprise was as nothing compared to the amazement of the Mandans when he started to draw the participants in their ceremonial costumes, as well as some of the chiefs in all the splendour of their battle raiment. Unfortunately it also frightened their wives, who feared that such a great medicine man as Catlin obviously was would have the power to destroy as well as create.* The white man, however, won the day, and during the three weeks he was among them Catlin "executed at least twenty portraits and as many scenes in Indian life".

Dr Ewers believes that it was Catlin's new status as a medicine man that was largely responsible for winning him permission to watch the great annual religious ceremony of the *O-kee-pa*, lasting for four days.

All the chromolithographs found in the original edition are reproduced here in colour, to the number of thirteen. There is also a highly interesting appendix containing letters from well known people such as General Cass and Daniel Webster, relative to Catlin's visit; and in the body of the book one from Prince Maximilian who had visited the Missouri tribes in 1833.

*For a somewhat parallel situation in modern times, see *The Beaver*, March 1948, p. 49, in which the reactions of primitive Chipewyans are described on being confronted by Richard Harrington's camera portraits of some of them—including a woman who had died some time after being photographed.

Before his recent retirement Clifford Wilson, former editor of "The Beaver", was in turn Director of Glenbow Foundation and Assistant Director of the National Museum of Canada.

FUR TRADE CANOE ROUTES OF CANADA: Then and Now

By Eric W. Morse. Queen's Printer, Ottawa, 1969. 125 pages, illus. $3.75

Many people have been waiting for this book, including some who do not know they have been waiting. They are the ones who like to get away from urban life and business pressures, who seek the flavour of the wilderness that still exists in Canada, who enjoy the quiet unspoilt places that can be reached by paddling a canoe and camping along the way.

There is probably no one, anywhere, who has travelled so extensively in a paddled canoe as Eric Morse. From weekend trips in the Ottawa area he extended his jaunts to following the cross-continental fur trade routes of the voyageurs of old. Then he ventured even farther, to waters the fur traders never dreamed of paddling, in the subarctic and arctic.

This is not a book about the history of the fur trade but, as the author makes clear, about its geography. At the same time, he points out to canoeists the added pleasure they will derive by reading earlier accounts of the waterways they follow. References for further reading

are given with each section and readers will be glad to know that a number of the works cited are now available in reprint form.

The first part of the book discusses the fur trade, its "hero" the voyageur (with a delightfully human description of him by Daniel Harmon), the canoes, the food, the country. The second part deals with specific routes, with advice for modern travellers. Good maps and attractive illustrations supplement the text.

Mr Morse has studied the reports of early travel on Canadian waterways, has analysed the watersheds of the country; and he has worked out the logistics of modern travel, has planned routes for fellow travellers, among whom has been his wife. With this accumulation of years of study, research, and practical experience, Mr Morse is the adviser *par excellence* on canoe travel. Anyone contemplating a trip should own this book and others who read it may well be inspired to set forth to find out for themselves the wonders of the wilderness and the spiritual refreshment that comes to those who spend some time close to nature. —*M.B.*

ALASKAN ESKIMOS

By Wendell H. Oswalt. Chandler Publishing Co., San Francisco, 1967. 297 pages, illus. $4.00 paper; $7.25 cloth.

THE ESKIMO OF NORTH ALASKA

By Norman A. Chance. Holt, Rinehart & Winston, Toronto. 107 pages, $1.95 paper-back

Reviewed by A. Stevenson

By the time the ancestors of the people anthropologists call, and whom we think of today as Eskimos were first seen by Viking visitors to Arctic America about A.D. 1000 they had spread across 5,000 miles of winding coast from Siberia to Greenland. The word Eskimo meaning "Eaters of raw meat" is generally accepted as originating from the language of the Algonkian Indians in eastern Canada. The Eskimos refer to themselves as "Inuit", literally the "real people". Occupying about half the circumference of the globe, the population over this immense region probably never exceeded 100,000. Some authorities believe it was closer to 50,000. In this regard Dr W. H. Oswalt, in his volume *Alaskan Eskimos* points out that at the period of relatively early historic contact in Alaska there were some 26,000 Eskimos in a total Eskimo population of around 48,000. In other words at the period of historic contact there were more Eskimos in Alaska than in Canada, Greenland and Siberia combined. (Today's world figure is approximately 73,000.)

Dr Oswalt writes: "Here existed more diversity in life ways, greater overall complexity and a more concentrated population than in any other region of Eskimo habitation. It is probable that Eskimo culture had a greater temporal continuity in Alaska than elsewhere. Here the culture reached its most intensive development and climaxed."

Alaskan Eskimos describes the traditional ways of a people when first encountered by Europeans. It does not touch on current changes the descendants of the early Alaskans are facing in the rapid transition of a jet age. It goes into detail on the subjects of environment, language, pre-history, biology, clothing, technology and religious patterns of old. The book contains many fine line drawings and illustrations, together with some splendid colour photographs of artifacts. There are also a number of good maps and an excellent bibliography which all make *Alaskan Eskimos* a thorough, assiduous and useful work of reference.

The author, Dr Wendell H. Oswalt, is a Professor of Anthropology at the University of California. He has spent a great deal of time in Alaska carrying out field research and has written many papers on the Alaskan Eskimos.

The publication *The Eskimo of North Alaska* by Norman A. Chance, is a case study of the modern Eskimos. It includes a brief history of the people and goes on to discuss traditional and present day child-raising practices. The modern way of life is intertwined in some areas with the old. Village life and its many ramifications are examined, from marriage and family to law and social control. Other topics are cultural values and the dynamics of change and the quest for identity. Professor Chance sums up by a reference to the future policy of the American Government: "What is needed today is a program that will enable individuals at all levels of the community to participate in the development of their own resources. From a short-range point of view, it may be more efficient to give funds to build a technical school, health center, or construct new roads. But if the Eskimo are to gain greater self-initiative, a greater sense of personal worth, and a greater measure of control over their own future, they must be included as active participants in the development program. An increasing number of north Alaskan Eskimos are ready to undertake these efforts, as the recent *Innupiak* conferences have shown. The extent to which the government makes use of this potential will bear directly on the success of its overall policy. . . . Without idolizing the traditional way of life one hopes that the personal qualities of resourcefulness, ingenuity and good humor which have carried the Eskimo through many difficult periods will not be lost as they make their way into the future."

Norman A. Chance is an Associate Professor of Anthropology and Director of the Program in the Anthropology of Development at McGill University, Montreal. He is a Fellow of several anthropological associations and the author of numerous works dealing with problems of cultural change and applied anthropology. He has based this monograph on field work conducted between 1958 and 1962.

Although a great deal has been written about all Eskimos, including those of Alaska, students or laymen interested in the subject should find *Alaskan Eskimos* and *The Eskimo of North Alaska* informative and rewarding reading.

Beginning his career with the H B C among the Eskimos, Alex Stevenson has spent years in the far north and in his present government position as Administrator of the Arctic the continuing need to promote closer liaison with other nations interested in northern development has taken him to all countries, except Siberia, that have an Eskimo population, adding to his extensive knowledge of these people.

ESKIMO ART

This popular presentation of many aspects of Eskimo carving, old and recent, pottery, painting, masks, with a selected bibliography, which was a special issue of The Beaver in 1967, has now been reprinted. 100 pages of text and pictures.

$1.50 from

The Beaver, Hudson's Bay House Winnipeg 1, Manitoba

A SAND COUNTY ALMANAC

By Aldo Leopold, Oxford University Press, 1966, 269 pages, drawings. $7.25. Paperback, 1968, $1.95.

Reviewed by Dieter H. Schwanke

Do you remember some blissful day when you were free and spent some hours or a day just loafing in the woods? The creek behind the knoll, peacefully splashing on the shore was personal, a "he". The thorny hedge that crossed your road was glaring at you with its berry eyes, the squirrel nattering at you from the trees a chap to whom you eagerly talked back.

Aldo Leopold's essays in *A Sand County Almanac* are vivid recollections of days and seasons spent on a wild and rather unproductive farm. As current economic standards go, the farm was useless, full of sand. But in his walks and watchings on this sandy spot the author does not feel poor or underprivileged. The land, he learns, cannot be estimated, counted, valued by economical considerations such as how much corn or timber it will grow, nor by its postcard sceneries. The land is part of us and shapes us when we drink it in, alone with it, the trees, the bushes, the fox, the deer, the insect-eating birds.

In other essays Aldo Leopold, who early knew the import of ecology, experiences the sadness, emptiness of craggy mountains without grizzly bears; what will a marsh in Manitoba be without the rushing sounds of grebes?

In the final section of the book the author suggests ways of recreating the fine harmony of man and land, amongst them a great plea for amateur research in botany, zoology and, of course, ecology.

Although the book presents mainly the American scene, its conclusions may well save us at least some of our northern land.

Interspersed with lovely drawings of wild creatures by Charles Schwartz, the book is delightfully romantic at the outset, sadly provocative in its end.

Dieter Schwanke is a naturalist and editorial adviser who likes to live by the marsh country of the Red River.

NATIONAL MARITIME MUSEUM: Catalogue of the Library. Vol. I, Voyages and Travel

H. M. Stationery Office, London, 1968, 42s, or on order from H.M.S.O. Sales Officer, British Information Services, 80 Elgin Street, Ottawa 4, Ontario. $7.60

Reviewed by L. H. Neatby

The British National Maritime Museum was founded in 1934. Its library now contains over 50,000 volumes covering every aspect of maritime affairs. Under the direction of the librarian, Michael Sanderson, the catalogue of this collection is now being prepared. The volume here reviewed, the first of its series, lists all printed books in the library relating to voyages and travel from the Viking period to the present day. Subsequent volumes will deal with Biography, Atlases and Cartography, Shipping Companies, Naval History, and Piracy.

The 1204 titles of Volume I include the great compilations of Hakluyt, Purchas, De Bry and Hulsius, the works of Coxe and Burney, the Cook anthology, which finds its climax with Beaglehole, the journals of the Franklin era and a host of rare and precious chronicles in English, French, Dutch, Spanish and Portuguese.

Titles are grouped under the following headings: Collective voyages, Circumnavigations, Africa, America, East Indies, Europe and the Mediterranean, Far East, Pacific, Polar: Arctic, and Polar: Antarctic. Within these divisions titles are given chronologically, and the various accounts of particular voyages grouped together, permitting the student to learn at a glance the sources available to him in a specialized field.

This is a de luxe volume both in content and form. The more important titles are supported by a sometimes lavish table of contents, and frequently biographical and historical notes are added. The latter contain some inexactitudes. Sir Edward Belcher, for instance, did not desert *all* his ships in May 1854; and the characterization of Sir John Ross's 1818 voyage in Baffin Bay as "famous, even notorious", is lacking in objectivity, and would be challenged by some authorities, among them, one suspects, Ernest S. Dodge. None the less they are very helpful, especially with the lesser known authors, and give the text a quality of readability which few catalogues possess. It is a magnificent book and I only wish that I had had it—and access to its contents—twenty years ago. The printing of both text and index is admirably clear. Two general maps and eight plates are bound in with the text. One can only hope that this rich substance and sumptuous *format* will not retard the appearance of the other volumes of the series.

Dr Neatby, now in Saskatoon, was formerly head of the Classics Department at Acadia University; among the books reflecting his deep interest in arctic exploration are "In Quest of the North West Passage" and "Conquest of the Last Frontier".

EMPLOYMENT ADVERTISEMENT

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The rock in 1963 when the water in the Albany River was high.

THE MAMATOWASSINI

By GEORGE THORMAN

Photos by the author who is vice-principal of Parkside Collegiate Institute at St Thomas and a writer on Canadian historical subjects.

ABOUT THIRTY-FIVE MILES up the Albany River from Fort Albany in the James Bay lowland there is a mysterious sacred rock.

My own interest in this stone was based on three entries in the Albany Journals. On 9 January 1766, William Richards, John King, and William Evans were sent to the former site of Henley House some 140 miles up the Albany. The first Henley House had been established in 1743; it was sacked by Indians and abandoned in January 1755; it was re-established in 1759 and abandoned in the same year when Indians and French pedlars murdered George Clark, the chief factor. Richards was to investigate the possibility of procuring provisions at Henley and of making a start in again setting up a post. On January 10th the party reached Esquanagog Island (the name means the last island), the last of the maze of islands in the Albany estuary. On January 11th the party stopped at "Mawsawesing" which is Richards' spelling of the Indian name. In June 1766 Richards led an expedition to build Henley and on the 5th he records passing the "Wonderful Stone".

In March 1777 John Martin and three men were sent to take the compass bearings and measure the distance from Albany to Henley. On March 8th Martin records passing Squandican Island (Richards' Esquanagog); the next day he records reaching the "Indian Stone".

Although when I went there two hundred years later many of the Indians at Albany knew about the stone, very few of them knew why it was sacred or powerful. None of the local traders or Hudson's Bay Company employees had ever heard of a Wonderful Stone. Bill Anderson, an independent trader at Albany, and a man who has been up and down the river innumerable times in his long career had never heard of the stone. When asked if there was any story or legend attached to the rock, most Indians laughed. The story seemed to have been forgotten; but the Indians did give me the name for the stone. The Muskegon Cree call it the Mamatowassini which they often shorten to Matowsin; the Ojibwa call the stone Mamantowasin. The translation of the Cree name is wonderful stone from *mamata* (wonderful) and *assini* (stone). The word wonderful is attached to the stone not only because of its power but because the Cree word "Mama" is better translated as strange or peculiar than as wonderful.

What makes the stone peculiar is its composition; it is a large greenstone lava boulder. In a river bestrewn with large boulders it is, to my knowledge, the only large boulder of greenstone lava between Fort Albany and the Shemattawan (junction of Kenogami and Albany). A glacial erratic, the only one of its type, it is a long way from any area of greenstone lava, and it is this fact perhaps that has given the stone its name. Mr David Wynne of Moosonee explains Mamatowassini as "something peculiar or something different from other stones".

My wife and I visited the stone in 1963 and in 1965. On the first visit the stone was exposed for only a few feet because the water was high; two years later the stone was completely exposed. The stone is roughly 17 feet long, 11 feet broad, and 5½ feet high. At the upriver end is a notch. There are six depressions which resemble footprints on the north side and on the south side two large depressions resembling sleeping places which are quite comfortable to lie in. The notch, the footprint-like depressions and the two sleeping places are natural formations in the rock.

Examining the notch and some of the "footprints" when the water was low in 1965.

I asked some Crees what they knew about the stone.

Mr Etherington, who was 90 years old when interviewed in 1963, said that two or three spirits came down the river in a canoe and ran their canoe into the rock which accounts for the notch. They got out of the canoe and walked up the left side of the rock and lay down on the right side.

Mr Simeon Scott of Albany told that a man, a woman, and a child came to the rock. Their spirits are in the rock. Scott compares his belief in the Virgin Mary who prays for him to the Ojibwa belief that the spirits in the rock act as an intermediary for the Great Spirit.

Mrs John Henry George was 73 years old when I talked to her in 1965. She was born at Akimiski and lived at Attawapiskat before moving to Albany. She claims that, "the Mamatowassini is the only magic rock in the James Bay area that all the Indians know about". She says that spirits in the rock have no names. Long ago two spirits, both male, lay on the rock and made the sleeping places; then they went inside the rock. The conjurors of the Ojibwa would lie in the sleeping places to become inspired. By lying on the rock the conjurors, like Faust, sell their souls to the bad spirits who will grant them all kinds of favours, and protect them from the results of their wrongdoing.

According to Mrs George, both Cree and Ojibwa conjurors used the stone. Ordinary people, to placate the spirits, put gifts of tobacco or food on the rock; the consensus of opinion is that the spirits in the rock are bad—good spirits need no placating—and require gifts to ensure the travellers a safe journey on the river.

Just to be on the safe side, we very carefully laid a cigarette on the rock before continuing down the Albany.

In 1965 the rock was completely exposed and the author and a Cree friend lie in the sleeping places.

Before I left Albany I asked Mr Simeon Scott, a retired former clerk in the H B C store, to tell me a story of his people and he related to me

THE ORIGIN OF THE MUSKEGON CREE

A long time ago the Cree people lived in another country which was away up in the air.

One day a man and his wife went for a long walk. They heard voices and they stopped to listen. They could see no one but the voices were evidently talking to them.

A voice said "Would you like to go to another country?"

"Yes", they replied.

The voice warned them, "It is a different country; it is down below the air; it has great storms and the weather is sometimes burning hot and sometimes freezing cold. Do you still want to go?"

Both the man and his wife said that they wanted to go to this different world.

The voice said, "Go on in the same direction until you come to the end of this country and there you will find somebody who will tell you all you need to know".

They went on and on until they came to the end of the world but the only person they could find was a big spider called Ahebbock. When the spider saw the two people he said, "What do you want? Do you want to go to another country?"

"Yes", they replied.

Ahebbock said, "Wait, for I am going to make the web".

He began to spin threads as fast as he could, and cleverly wove them into a large basket fastened to a long, long thread.

Ahebbock gave the man and woman all kinds of instructions for when they arrived in the new country. He told them how to fish and how to hunt and how to keep warm in the cold of winter.

At last he told them to get into the basket and prepared to lower them. As he started to pay out the slender cord he told them, "Just one of you look down. If you both look down at the same time you will fall into the eagle's nest".

For hours and hours the basket was lowered but nothing could be seen. Finally, the man whose turn it was to look down, said excitedly, "I can see the trees now; I see the river, I see the lake, I see the grass".

The woman forgot the warning and she looked down. The cord loosened and the basket fell into the eagle's nest. It was in such a large tree and so high from the ground that they could not get down.

A herd of caribou came past the tree and the man and the woman asked the caribou to help them get down but the caribou said they could not climb trees and continued on their way.

Then the sleek lynx came by. As the lynx has strong claws and is a good climber the people asked for his help, but the lynx answered that he was too busy to go up the tree and he passed by.

At last two other animals came near the tree; the black bear and the wolverine. The people implored their help and the bear went up the tree and with the wolverine's help he got the man and the woman out of the basket and brought them down to the ground.

The two people stayed with the bear and he taught them how to live in their new country.

According to the Muskegon Cree, for the help he gave their ancestors, the bears' paw-print ever after looks like a human foot. ◆

"Henry Kelsey came down with a good fleet of Indians; and hath travelled and endeavoured to keep the Peace among them according to my Order."

Governor George Geyer, York Fort, wrote this in 1692 of Company explorer Henry Kelsey, renowned for his expeditions to the prairie country. He was the first man of his time in Western Canada to master the difficult but essential technique of living and travelling like an Indian, to work seriously on the native languages and, most important of all, to act as a peacemaker between the various tribes.

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